

**SUPPLEMENTAL RCRA FACILITY
INVESTIGATION REPORT**

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

June 2003

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1.0 INTRODUCTION

1.1 Summary of RCRA Corrective Action Program

A RCRA Facility Investigation (RFI) was undertaken at the Shell Chemical Yabucoa Inc. (formerly Puerto Rico Sun Oil Company, PRSOC) petroleum refining facility located in Yabucoa, Puerto Rico. The RFI is being implemented to satisfy the terms of the RCRA 3008(h) Corrective Action Order signed by PRSOC and the United States Environmental Protection Agency (EPA) in June 1994. Sunoco Inc. (Sunoco) of Philadelphia, PA sold its PRSOC facility to Shell Chemical Yabucoa Inc. (SCYI), on December 31, 2001. However, Sunoco is performing the RFI work on behalf of SCYI.

The RFI was conducted in accordance with the terms of the RCRA Facility Investigation Work Plan (AMAI, 1994), which was initially submitted to EPA in October 1994 and approved by EPA, with certain revisions, in April 1996. The RFI included the investigation of soil and/or groundwater at 16 solid waste management units (SWMUs) identified in the Order. RFI field activities were conducted between June and August 1996 with certain follow-on activities conducted in January 1997. A Draft RFI Report (AMAI, 1997), which summarized the results of the RFI, was submitted to EPA in June 1997.

In response to EPA comments, PRSOC submitted a Supplemental RFI Work Plan in March 1999. The objective of the Supplemental RFI was to address a number of data gaps identified by EPA. The Supplemental RFI Work Plan was approved by EPA, with certain revisions, in November 2002 (AMAI, 2002). Background soil sampling locations were approved by EPA in March 2003. Supplemental RFI field activities were conducted between January and June 2003. This report, which presents the results of the Supplemental RFI, is being submitted as an Addendum to the 1997 Draft RFI Report.

1.2 Facility Description

The SCYI facility is located on Route 901, Camino Nuevo Ward, about 1.5 miles east of the town of Yabucoa, Puerto Rico. The facility is situated within the southeastern portion of the Yabucoa Valley. The general footprint of the facility is presented in Figure 1-1.

The facility occupies an area of approximately 252 acres which is subdivided into three working areas: the Refinery Area, the Tank Farm and the Dock Area. Figure 1-2 provides an overall facility plan which shows the relative location of each of the areas. The Refinery Area is the most inland portion of the facility. The Tank Farm is located approximately 2,300 ft east toward

SHELL CHEMICAL YABUCOA INC.

Attachment II-1

Waste Analysis Plan

WASTE ANALYSIS PLAN

**Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico**

May 2002

Shell Chemical Yabucoa, Inc. (SCYI) has developed this Waste Analysis Plan (Plan) to satisfy the requirements of 40 CFR 264.13(b). The objective of this Plan is to establish procedures to be implemented by SCYI to obtain information needed to successfully store hazardous waste at its Hazardous Waste Storage Area (HWSA). Information gathered as a result of this Plan will be used by SCYI personnel to ensure that wastes will be managed in a manner that is protective of human health and the environment.

This Plan applies only to those hazardous wastes which are generated on-site and are stored in SCYI's regulated HWSA. SCYI does not accept waste from any off-site source.

As described in Chapter 1 of the RCRA Part B Permit Application, a comprehensive characterization of the hazardous wastes generated at the SCYI facility has been completed. This Plan is designed to ensure that initial waste classification is accurate and is up-to-date. The Plan will be modified as required to conform to changes in facility processes that may impact waste composition and to revisions in applicable hazardous waste regulations.

This Plan was developed in accordance with applicable USEPA guidance, including "Waste Analysis at Facilities That Generate, Treat, Store, and Dispose of Hazardous Wastes, A Guidance Manual," OSWER 9938.4-03, April 1994.

I. FACILITY DESCRIPTION

This section provides a brief description of SCYI's manufacturing process, waste generation activities, and hazardous waste management unit. Detailed information on each of these topics can be found elsewhere in SCYI's Part B Permit Application.

A. Facility Processes and Activities

The SCYI facility is a petroleum refinery which historically processed 85,000 barrels per day (bpd) of crude oil. Major products included: reformate, kerosene, light distillates, white oil, naphtha, jet fuel, diesel fuel, No. 2 fuel oil, desulfurized gas oil, lube oil base stocks, residual fuels, aromatic extracts, slack wax and sulfur. The facility operates continuously 24 hours a day, seven days a week, in three shifts. Due to recent reconfiguration in company operations, the facility is operating at a reduced output and scale. These changes will continue for the foreseeable future.

Operations at the SCYI facility are conducted at the three distinct areas - the Refinery Area, the Tank Farm and the Dock Area. The three areas are interconnected by a series of above ground pipelines. Further information on each of the areas is provided below.

Refinery Area - The Refinery Area includes SCYI's oil processing operations. The following process units are located at the Refinery Area: crude unit, gas oil desulfurizer, hydrogen unit, sulfur unit, hydrotreater and feed preparation unit, MEK dewaxing unit, UV stabilization and final distillation unit, gasoline reformer and utilities. The Refinery Area also includes tank storage facilities, administrative and maintenance operations and a waste storage and treatment facility. The Refinery Area Wastewater Treatment Plant is located in the northern portion of the Refinery Area.

Tank Farm - Raw materials and products manufactured by SCYI are stored in above ground steel tanks in the Tank Farm Area. Materials are conveyed to and from the Tank Farm via above ground pipelines. The Tank Farm contains approximately 43 crude and product tanks, ranging in size from 500 to 375,000 barrels. In addition, there are three storage tanks associated with SCYI's ballast water and slop oil management systems. A tanker truck loading rack is located near the southwestern corner of the Tank Farm. The

Tank Farm Wastewater Treatment Plant is located in the southeast corner of the Tank Farm.

Dock Facility - SCYI operates a dock facility for the loading and unloading of crude oil and products. The facility includes a Main Dock which serves oil tankers and a Barge Dock which serves smaller vessels and barges. There is also a dock for the servicing of tugboats. Crude oil and products are transferred to and from the Dock Area via aboveground pipelines. There are no storage facilities, process units or any other operations conducted at the Dock Area.

The SCYI facility is served by several different wastewater collection and treatment systems. The systems are designed to reduce the volume of contaminated wastewater requiring treatment by segregating contaminated and uncontaminated wastewater to the maximum extent possible. At the Refinery Area, collection systems exist for contaminated process wastewater, contaminated storm water, uncontaminated storm water, and sanitary wastewater. At the Tank Farm, a collection system is provided for storm water and tank water drawoff. Collection systems are provided for storm water at both the Main Dock and the Barge Dock.

B. Classification and Quantities of Hazardous Waste

SCYI generates a number of hazardous wastes subject to Subtitle C of RCRA. These wastes are managed in full compliance with applicable sections of 40 CFR Parts 260 through 270 and equivalent Commonwealth of Puerto Rico regulations. At present, the facility operates a single RCRA-regulated hazardous waste management unit. This unit, the Hazardous Waste Storage Area (HWSA), is used for the storage of hazardous waste generated throughout the site prior to off-site disposal. A full description of the unit is provided below in Section C.

Approximately 98% of the hazardous waste routinely generated at the SCYI facility and transported off-site for treatment and/or disposal is sludge from the process sewer, the wastewater treatment plant, slop oil tanks or bulk storage tanks. Historically, this has totaled approximately 675 tons per year. Generally, these wastes are dewatered using a plate filter press in order to reduce the volume of sludge requiring off-site treatment and/or disposal. Dewatered sludge is placed in suitable containers and transferred to SCYI's Hazardous Waste Storage Area prior to off-site shipment. Further description of hazardous wastes generated at the SCYI facility is presented below.

F037 - Petroleum Refinery Primary Oil/Water/Solids Separation Sludge - This waste is generated from refinery process sewers, wastewater treatment tanks (W5 and W6), oil recycling system tanks (103, 10 and W1), and process waste units located upstream of API separators. The material is not subject to regulation until it is removed from the sewer, tanks or units. The waste is generated on a periodic basis during routine maintenance and repair activities. The pumpable portion of the sludge is pumped into a vacuum truck while the hardened sludge is removed by shovels. Sometimes, water is added to loosen the sludge and make it pumpable. The dry hardened sludge is stored in 55 gallon drums at the HWSA. The pumpable wet sludge is dewatered and stored in roll-off containers at the HWSA.

F038 - Petroleum Refinery Secondary Oil/Water/Solids Separation Sludge - This waste is generated at units where secondary oil/water/solids separation occurs and at certain downstream units. Wastes include sludge from the DAF and IAF Units as well as IAF float. F038 sludge is generated on a periodic basis when maintenance work is performed in these units. The pumpable portion of the sludge is pumped into a vacuum truck while the hardened sludge is removed by shovels. Sometimes, water is added to loosen the sludge and make it pumpable. The pumpable sludge is dewatered and stored in roll-off containers at the HWSA before being shipped off-site for disposal. The dry hardened sludge, shoveled from the units, is containerized for disposal. Float from the IAF Unit is continuously generated and is conveyed to the Watery Oil Separator. The material is ultimately recovered in the Crude Unit.

K048 - Dissolved Air Flotation (DAF) Unit Float - The DAF Unit provides process wastewater with secondary oil/water/solids separation. Float from that DAF Unit is continuously generated and is conveyed to SCYT's slop oil tanks W5 and W6. The material is ultimately recovered in the Crude Unit.

K049 - Slop Oil Emulsion Solids - SCYI operates four Slop Oil Tanks - Tanks 103, W5 and W6 in the Refinery Area and Tank 10 in the Tank Farm. The slop oil tanks are routinely taken out of service at which time they are cleaned, inspected and, if necessary, repaired. Recovered oil is processed in the Crude Unit. The water phase, which may contain emulsion solids, is discharged into the process sewer. The solids ultimately settle in the API separator and, upon removal, are managed as API separator sludge (K051).

K050 - Heat Exchanger Bundle Solids - Refinery Area heat exchanger bundles are periodically cleaned using steam cleaning, high pressure hydroblasting or other suitable means. Wash water and solids generated during the process are discharged by a drainage system to the process sewer system, which flows into the 2-Cell API Separator. Solids settle in the API separator and, upon removal, are managed as API separator sludge (K051). Heavy solids on the concrete pad, which are not captured by the drainage system, are shoveled into drums. The drummed material is dewatered using a non-reactive sorbent material to remove any free liquid and is managed as K050.

K051 - API Separator Sludge - Solids are periodically removed from the Refinery 2-Cell and 3-Cell API Separators as well as the Tank Farm East and West API Separators. These solids are dewatered, containerized in roll-off containers and transported off-site for disposal.

K169 - Crude Oil Tank Sediment - SCYI may periodically generate sediment when cleaning out crude oil tanks. This sediment will be dewatered using non-reactive sorbent material or other suitable means, containerized in roll-off containers and transported off-site for disposal.

K171 - Spent Hydrotreating Catalyst - During process unit turnarounds, approximately once every three to five years, SCYI generates a spent catalyst from the hydrotreater unit. The spent catalyst, which is a solid, is placed in lined 55-gallon drums upon removal from the process reactor. The catalyst is covered with a CO₂ blanket prior to closure of the container cover. Since this waste is listed by EPA due to its ignitable and toxic properties, it is stored in the area of the HWSA dedicated to storage of ignitable wastes prior to shipment to a reclamation facility for regeneration or reclamation.

K172 - Spent Hydrorefining Catalyst - During process unit turnarounds, approximately once every two years, SCYI generates a spent catalyst from the gas oil desulfurization (hydrorefining) unit. The spent catalyst, which is a solid, is placed in lined 55-gallon drums upon removal from the process reactor. The catalyst is covered with a CO₂ blanket prior to closure of the container cover. Since this waste is listed by EPA due to its ignitable and toxic properties, it is stored in the area of the HWSA dedicated to storage of ignitable wastes prior to shipment to a reclamation facility for regeneration or reclamation.

D001 - Ignitable Waste - Occasionally, small quantities of solid waste which may exhibit the characteristic of ignitability are generated. These materials may include spent solvents (not otherwise listed as hazardous waste), spill residues, off-specification product and miscellaneous laboratory and process waste. These wastes are classified as ignitable based on MSDS information, process knowledge and/or testing. These materials are placed in 55 gallon drums and stored in a designated area within the HWSA prior to off-site treatment, recovery or disposal.

D018 - Toxic (Benzene) - Process wastewater generated in the Refinery Area may contain benzene concentrations in excess of the TCLP levels. As a result, this material is classified as hazardous. D018 wastewaters are discharged into the 2-Cell API Separator. Primary separation is followed by dissolved air flotation in the DAF Unit and flow equalization in the Equalization Tanks. Testing has determined that the wastewater no longer exhibits the characteristic of toxicity after these initial treatment steps.

Tank bottoms from Reduced Crude Tanks and bottoms from the Desalter (process vessel) containing benzene are generated from routine maintenance and clean-out operations. Occasionally, small quantities of paint sludge is generated from routine painting operations using benzene thinner. These wastes may be classified as D018 due to the presence of benzene. The D018 waste is solidified with non-reactive sorbent material to remove free liquids and placed in 55-gallon drums.

U154 - Methanol - Off-specification methanol is periodically generated at the SCYI laboratory. This material is placed in suitable containers and is stored at the HWSA prior to off-site disposal. Methanol waste is managed as an ignitable waste.

Other Wastes - Other hazardous wastes may be periodically generated in limited quantities at the SCYI facility. These wastes may include laboratory waste, spill residues, excess or off-specification raw materials or products, etc. These wastes are placed in appropriate containers and are managed in full compliance with generator standards set forth at 40 CFR Part 262. The containers are stored at the HWSA for periods less than 90 days.

Hazardous constituents that may be present in the above wastes include petroleum hydrocarbons and metals. Table 1 presents a summary of the information relating to the basis for hazard classification. The above listed F- and K-wastes are classified by EPA as hazardous due to the potential presence of one or more of the following hazardous constituents: chromium, lead, arsenic, benzene, chrysene and benzo(a)pyrene.

C. Hazardous Waste Management Units

SCYI operates a single RCRA-regulated hazardous waste management unit - the Hazardous Waste Storage Area (HWSA). The HWSA is used by SCYI for the temporary storage of containers of hazardous waste prior to off-site shipment and disposal. Waste may be stored for periods exceeding 90 days. All containerized wastes are sealed to prevent accidental spillage.

After completion of the proposed upgrade, the HWSA will consist of two adjacent structures: an enclosed storage building and a covered concrete slab. The total storage capacity of the HWSA will be 717 cubic yards (cy) of hazardous waste. The total area of the unit will be approximately 6,810 square feet (sf).

The enclosed storage building includes a 4-inch thick, reinforced concrete floor, a galvanized sheet steel roof, steel siding on the north, south and east sides and a chain link fence with gate on the west side. The concrete floor is surrounded by an 8-inch high concrete block berm. Access to the building is via a ramp located on the west side of the building. The building is 60 ft long by 30 ft wide. The storage building is used for the storage of non-liquid hazardous waste in containers. Containers are placed on pallets and are transferred into and out of the building using a forklift. Containers are managed to minimize the potential for release of hazardous constituents within the building.

The proposed covered concrete slab area will consist of an 8-inch thick reinforced concrete slab surrounded by a continuous 4-inch high curb. The concrete slab will be used for the storage of liquid and non-liquid hazardous waste, primarily stored in roll-off dumpsters mounted on chassis and 55-gallon drums staged on pallets. The slab will be covered with a pre-fabricated, continuous span steel roof. The roof will not require supporting columns within the storage area. The storage area will be surrounded by a chain link fence with gates at access areas. Access to the storage area is via ramps located on the east, west and south sides of the building. The total area of the slab will be approximately 5,010 sf. The slab will be equipped with

trenches to drain spilled liquids and accumulated, wind-blown precipitation into blind sumps for removal.

II. SELECTION OF WASTE ANALYSIS PARAMETERS

Waste analysis parameters have been selected to provide SCYI with an accurate representation of the physical and chemical properties of the hazardous waste managed at the HWSA. The Plan will gather sufficient information to ensure:

- Compliance with applicable regulatory requirements
- Conformance with permit conditions
- Safe and effective waste management activities

A. Criteria and Rationale for Parameter Selection

SCYI considered the following criteria in identifying suitable waste analysis parameters to ensure safe and effective hazardous waste management activities:

Waste Identification - SCYI has relied on knowledge of the refining process and historical waste analysis data to properly identify and classify its hazardous waste. Due to the nature of SCYI's manufacturing processes, the physical and chemical characteristics of the hazardous wastes generated at the site are expected to remain relatively constant in the future. Stringent quality control requirements associated with the manufacture of petroleum products ensures that adequate information regarding chemicals used in the process is available. Testing standards and other quality assurance/quality control procedures are in place to ensure the quality and purity of each component within a process. No substance other than those specified may be introduced into a specific manufacturing process. Furthermore, as part of SCYI's site-wide Pollution Prevention Program, any proposed change to the manufacturing process must be evaluated by the Environmental Engineering Group for potential increases or changes in the generation, emission, or discharge of pollutants. Consequently, no hazardous constituent could be present in SCYI's waste stream without prior knowledge of its use in the manufacturing process.

SCYI's hazardous waste streams are either listed as hazardous under 40 CFR 261 Subpart D or exhibit a characteristic of hazardous waste as defined in 40 CFR 261 Subpart C. Routinely generated listed wastes include F037, F038, K049, K050, K051, K169, K171, K172 and U154 while the characteristic wastes include D001 and D018. SCYI applies process knowledge to identify and characterize listed hazardous sludges and catalysts routinely generated at the facility, including F037, F038, K049, K050, K051, K169, K171 and K172. Testing of these waste streams is not required to properly identify or characterize the wastes. Similarly, SCYI identifies and characterizes wastes resulting from discarded off-specification commercial chemical products of known physical and chemical constituents, such as the U-listed waste, by applying knowledge of the waste stream rather than testing. D001 wastes are identified and characterized as ignitable based on MSDS information, knowledge of the waste generating process or ignitability testing. Benzene-contaminated waste streams (D018) are identified and classified based on knowledge of the waste generating process or TCLP testing.

Identification of Incompatible/Inappropriate Waste - SCYI has not identified any wastes generated at the facility which are incompatible with other wastes or with the hazardous waste storage containers used by SCYI. Prior to introducing any new chemical to the manufacturing process, SCYI will assess the potential for incompatibility or reactivity problems and will make modification to its waste management system accordingly. Procedures for evaluating compatibility of materials are presented in Section VI.B of this Plan.

If SCYI has reason to suspect that a solid waste generated at the facility may exhibit a characteristic which would render it hazardous (i.e., ignitable, corrosive, reactive or toxic), the material will be classified as hazardous based on SCYI's knowledge of the chemical and physical properties of the material or on analytical results. If analytical results indicate that the waste is hazardous, or if SCYI makes such a determination without conducting sampling, the waste will be handled in full compliance with RCRA requirements. Application of process knowledge and waste analysis, if required, will ensure that hazardous waste remains properly classified in the future.

Based on consideration of the above criteria, SCYI has included in the Waste Analysis Plan a sampling and analysis program designed to ensure that the waste managed is in full

compliance with applicable RCRA requirements. Sampling and analysis of hazardous waste will be undertaken if any of the following conditions apply:

- The waste is of unknown physical or chemical characteristics or SCYI has reason to suspect that the waste exhibits ignitable, corrosive, reactive, or toxic characteristics, so as to render it hazardous.
- Changes in any manufacturing process may impact the characteristics of the hazardous waste and potentially increase risks to human health or the environment.
- Testing is required by the off-site TSDFs or reclamation facilities used to treat and/or dispose of the hazardous wastes generated at SCYI. In the event that a particular waste is rejected by a TSDF or reclamation facility, the waste will be sampled and analyzed as an unknown, heterogeneous waste in accordance with the procedures described in Sections IV (sampling) and V (analysis).

If a waste is subjected to sampling and analysis, the parameters selected will ensure proper identification and characterization of the waste. A list of parameters to be included in the sampling and analysis program is presented in Table 2 along with the rationale for selection. Sampling methods and frequency are discussed in Sections IV and V of this Plan, respectively. Application of SCYI's knowledge of chemicals used in the manufacturing processes along with analytical results will ensure that any changes in the physical or chemical characteristics of the waste are identified.

B. Special Parameter Selection Requirements

Waste analysis procedures for complying with "specialized" waste management regulatory requirements are incorporated into Table 2, as referenced above. A brief discussion on specialized waste management requirements is provided below.

Ignitable Waste - Waste being tested as per this Plan will be analyzed for ignitability if SCYI suspects the waste may exhibit the ignitable characteristic. As a safety precaution, all hazardous waste identified as ignitable is labeled and segregated at SCYI's HW SA. It is managed as ignitable waste until it is shipped off-site for proper disposal. Spent

pyrophoric catalysts (K171 and K172) are classified as hazardous waste due to toxicity and/or ignitability. As a safety precaution, upon removal from a process unit, these wastes are placed directly into 55-gallon drums, covered with a CO₂ blanket prior to closure of the container cover, and stored in the area of the HWSA dedicated to storage of ignitable wastes.

Reactive Waste - Although SCYI does not currently generate reactive waste, waste being tested as per this Plan will be analyzed for reactivity if SCYI suspects the waste may exhibit a reactive characteristic. As a safety precaution, any hazardous waste identified as reactive will be labeled and segregated at SCYI's HWSA. If necessary, SCYI will blanket the waste within a container with an inert substance such as CO₂. It will be managed as reactive waste until it is shipped off-site for proper disposal or reclamation.

III. SELECTION OF SAMPLING PROCEDURES

A. Sampling Methods and Equipment

Hazardous waste to be stored within the HWSA may be in the form of liquid, sludge or solid. Sampling procedures are set forth in SCYI's Standard Operating Procedure (SOP) No 001 entitled "Sampling of Hazardous Sludges and Solids" and SOP No. 002 entitled "Sampling of Hazardous Liquids." Copies of these SOPs are included in Attachment A to this Plan. Sampling methods are summarized in Table 3. Specific sampling procedures differ depending upon the matrix of the waste, the type of container (e.g., 55-gallon drum vs. roll-off bin) and the homogeneity or heterogeneity of the waste. Procedures identified in the SOPs include, but are not limited to:

- Sample collection methodology;
- Number of samples;
- Decontamination procedures;
- Recordkeeping;
- Sample containers, preservation requirements and holding times;
- Chain of custody;
- Health and Safety requirements;
- Quality assurance/quality control.

B. Sample Preservation and Storage

Specific procedures for sample preservation and storage are provided in the SOPs described above.

C. Sampling QA/QC Procedures

Specific sampling QA/QC procedures are provided in the SOPs described above. QA/QC procedures are designed to satisfy the requirements set forth in Chapter 1 of "Test Methods For Evaluating Solid Waste: Physical/Chemical Methods," SW-846.

IV. LABORATORY TESTING AND ANALYTICAL METHODS

This section discusses how SCYI selects an analytical laboratory and selects testing and analytical methods for wastes subjected to sampling and analytical program.

A. Selection of Laboratory

All analyses associated with SCYI's waste analysis program are conducted by an independent laboratory. In selecting a specific laboratory, SCYI ensures that the laboratory has demonstrated experience and capabilities in the following areas:

Comprehensive QA/QC Program - The laboratory must document that a comprehensive QA/QC program is in place which is in full compliance with the requirements of Chapter 1 of "Test Methods For Evaluating Solid Waste: Physical/Chemical Methods," (SW-846). The QA/QC program must include qualitative QA/QC elements such as chain-of-custody protocol. The program must also use quantitative QA/QC measures including method blanks, duplicates, matrix spikes and surrogate spikes. Procedures to be followed by SCYI to monitor the laboratory to ensure all QA/QC objectives are met, are explained below.

Upon receiving each laboratory report, SCYI will review the case narrative to identify any QA/QC problems experienced by the laboratory. SCYI will check the chain of custody documentation for any breakage of sample containers, loss of sample integrity, use of improper sample containers, evidence of tampering and other problems. The continuity and completeness of sample tracking with chain of custody papers will be checked. The

report will be reviewed for inconsistencies in holding times and preservation techniques of samples.

On a quantitative basis, SCYI will review the report to ensure that the laboratory employed routine controls to evaluate the precision and accuracy of its analytical instrumentations by analyzing method blanks, duplicates, matrix spikes, surrogate spikes, and certified reference material. Results of the method blank analysis will indicate any contamination from analytical equipment or process. Similarly, analysis results of duplicates and certified reference material will evaluate the precision and accuracy of the analytical process respectively. Matrix spike results will determine the extraction efficiency of the method while the surrogate spike will indicate the effectiveness of the analytical process.

Technical Analytical Expertise - The laboratory selected must demonstrate proficiency in using established EPA analytical methods for hazardous waste determinations. The laboratory must demonstrate that analytical equipment is capable of consistently achieving required detection limits. To establish the laboratory's proficiency in using established EPA analytical methods, SCYI will hold a discussion with the laboratory's Project Manager on the knowledge of relevant methods, detection limits achievable for the analytes, versatility of the laboratory to adopt new EPA analytical methods, and certification of the laboratory (if applicable). SCYI will review the laboratory's QA/QC plan for consistency with EPA stipulated QA/QC procedures for appropriate methods. In addition, SCYI will review the data received by the laboratory for qualitative and quantitative elements of QA/QC as a routine check to determine the laboratory's proficiency in using established EPA analytical methods.

Information Management - The laboratory must maintain effective information management systems to assure that regulatory compliance can be verified and process performance can be evaluated.

B. Selection of Testing and Analytical Methods

The selection of analytical testing methods for the waste managed at SCYI's HWSA is based on the following four considerations:

- Physical state of the waste
- Analytes of interest
- Required detection limits

- Information requirements

Analytical methods selected are presented in Table 4. All methods are consistent with EPA-approved methods set forth in "Test Methods For Evaluating Solid Waste: Physical/Chemical Methods," (SW-846).

V. WASTE RE-EVALUATION

SCYT's waste re-evaluation program is designed to ensure that waste analysis will be repeated as required to ensure that waste classification is accurate and up-to-date. Waste re-evaluation analysis is conducted to identify any changes in the physical and chemical character of the waste managed at the HWSA Area. Waste re-evaluation will be performed as required based on the criteria described in Section II.A of this Plan, i.e., if a waste is of unknown characteristics, if SCYT suspects that a waste exhibits a hazardous characteristic, if SCYT changes any manufacturing process in a way that may significantly impact the characteristics of the hazardous waste generated, or if required by an off-site TSDF or reclamation facility. Table 5 includes the list of parameters to be included in the sampling program for waste re-evaluation.

VI. SPECIAL PROCEDURAL REQUIREMENTS

A. Procedures for Receiving Wastes From Off-Site Generators

Since SCYT does not receive waste from off-site facilities, these requirements do not apply.

B. Procedures for Ignitable, Reactive and Incompatible Waste

Wastes managed at SCYT's HWSA may periodically exhibit the characteristic of ignitability based on knowledge of process or by ignitability testing, included as part of SCYT's waste analysis program. As a safety precaution, all hazardous waste identified as ignitable is labeled and segregated at SCYT's HWSA. It is managed as ignitable waste until it is shipped off-site for proper disposal.

SCYI routinely generates spent hydrotreating (K171) and hydrotreating (K172) catalysts which may exhibit a pyrophoric characteristic. SCYI manages these wastes as ignitable wastes since they are listed due to toxicity and ignitability. The material is stored in plastic-lined 55-gallon steel drums. An inert CO₂ blanket is placed over the material within the drum. The waste is properly labeled and segregated in the HWSA until shipment off-site for reclamation.

SCYI does not manage reactive wastes at the HWSA. However, if SCYI has reason to believe that a particular waste exhibits a reactive characteristic, that waste will be evaluated in accordance with the provisions of this Plan.

SCYI does not manage incompatible wastes at the facility. However, as a precaution, SCYI has developed procedures for evaluating new or uncharacterized wastes to ensure that any such wastes are properly managed in the future. These procedures are summarized below and are based on EPA's guidance manual entitled "A Method for Determining the Compatibility of Hazardous Waste" (EPA-600/2-80-076).

- Based on knowledge of the manufacturing process, identify all hazardous constituents expected to be present in the new or modified waste stream ("Waste A") which are not currently present in the waste managed at the HWSA ("Waste B").
- For each hazardous constituent identified, determine the "reactivity group number" (RGN) presented in Appendix I of the above-referenced guidance manual.
- Determine the RGN for each hazardous constituent present in Waste B.
- Using the Hazardous Waste Compatibility Matrix presented in Figure 1 of this Plan, identify the "reaction code" by cross referencing each constituent from Waste A with each constituent from Waste B.
- Verify that mixing of the constituents will not result in potential incompatible reactions.

SCYI will not manage any waste at the upgraded portion of the HWSA that is incompatible with the low permeability sealant. Compatibility of the waste with the sealant will be determined based on the adequacy of chemical resistance as provided in the manufacturer's specification.

C. Procedures to Ensure Compliance with LDR Requirements

All hazardous waste generated at SCYI is subject to land disposal restrictions (LDR) under RCRA. If SCYI intends to send a hazardous waste off-site to a RCRA landfill, testing will be conducted to ensure that the waste meets applicable treatment standards set forth at 40 CFR 268 Subpart D. LDR treatment standards for hazardous wastes generated at SCYI are summarized in Table 6. Sampling and analysis methods to be employed in determining compliance with the standards has been discussed in Section III and IV, respectively. If it is known that the wastes do not meet applicable LDR treatment standards based on process knowledge, and if the waste is not being sent to a landfill subject to LDR requirements, no testing will be conducted.

SCYI complies with all applicable LDR notification and certification requirements set forth at 40 CFR Part 268, as summarized below:

- If SCYI determines that a waste does not meet applicable LDR treatment standards, SCYI will notify the TSD facility in writing with each shipment. At a minimum, the notification will include the EPA hazardous waste number and the manifest number.
- If SCYI determines that a waste does meet applicable LDR treatment standards, SCYI will submit to the TSD a notice and certification with each shipment stating that the waste meets applicable LDR treatment standards. At a minimum, the notification will include the EPA hazardous waste number, the manifest number and waste analysis data if available. The certification will be signed by an authorized representative and will state the following:

"I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 40 CFR Part 268 Subpart D and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA Section 3004(d). I believe that the information I

submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment."

- If SCYI determines that a waste is subject to an exemption from land disposal prohibition, SCYI will notify the TSD facility in writing with each shipment that the waste is not prohibited from land disposal. At a minimum, the notification will include the EPA hazardous waste number, the manifest number and waste analysis data, if available.
- SCYI will maintain on-site a copy of all notices, certifications, demonstrations, waste analysis data, documentation supporting determinations based on knowledge of the waste and other information required under 40 CFR Part 268 for a period of five years from the date that the waste was last sent to an off-site TSD. This five year period may be extended in accordance with 40 CFR 268.7(a)(7).

TABLE 1

**Identification/EPA Classification of Hazardous Waste Stored
at the Hazardous Waste Storage Area**

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

WASTE GENERATED ¹	PROCESS GENERATING THE WASTE	BASIS FOR HAZARD CLASSIFICATION	EPA WASTE CODE	HAZARDOUS PROPERTIES OF WASTE
Process Waste	Petroleum Refining	Process Knowledge/Sampling Results	F037 F038 K049 K050 K051 K169 K171 K172 D001 D018	Toxic Ignitable
Commercial Product	Quality Assurance Testing	Knowledge of Waste	U154	Ignitable

1. Other hazardous waste, which may be generated periodically in limited quantities and which may include laboratory waste, spill residues, excess or off-specification raw materials or products, etc., will be stored at the hazardous waste storage area for periods less than 90 days.

TABLE 2**Analytical Parameters and Rationale**

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

WASTE ¹	WASTE PARAMETERS	RATIONALE FOR SELECTION
Process Waste ²	Volatile Organic Compounds (TCLP) Semi-Volatile Organic Compounds (TCLP) Metals (TCLP)	Ensure continued compliance with applicable regulations; Determine applicable requirements for off-site disposal
Ignitable	Flash Point	Ensure safe management of waste; Determine applicable requirements to treat, deactivate or separately manage ignitable wastes
Reactive	Releasable Cyanides Releasable Sulfides	Ensure safe management of waste; Determine applicable requirements to treat, deactivate or separately manage reactive wastes
Toxic (Benzene)	Benzene (TCLP)	Ensure continued compliance with applicable regulations; Determine applicable requirements for off-site disposal
Accumulated Liquid (HWSA Containment System)	Flash Point Benzene (TCLP)	Ensure proper classification as hazardous or non-hazardous. Determine applicable requirements for off-site disposal
Unknown Waste	pH Flash Point Releasable Cyanides Releasable Sulfides Volatile Organic Compounds (TCLP) Semi-Volatile Organic Compounds (TCLP) Metals (TCLP)	Ensure continued compliance with applicable regulations; Determine applicable requirements for off-site disposal

1. If waste is classified as hazardous based on knowledge, such as U154 or laboratory waste, sampling and analysis will not be conducted.
2. Includes F037, F038, K049, K050, K051, K169, K171, K172 wastes.

TABLE 3

Sampling Methods, Equipment, and Procedures

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

WASTE DESCRIPTION	SAMPLING METHOD	SAMPLING EQUIPMENT	SAMPLE PRESERVATION AND STORAGE
Process Sludges/Solids ¹	Sample collection method provided in Attachment A - SOP 001	Scoop Sampler	Preservation and storage procedures are based on analytical parameter; See Attachment A - SOP 001
Liquid Wastes ²	Sample collection method provided in Attachment A - SOP 002	Polyethylene Coliwasas	Preservation and storage procedures are based on analytical parameter; See Attachment A - SOP 002
Accumulated Liquids (HWSA Containment System)	S002 - Dipper (SW-846)	Disposable Beaker	Refer to Section 6.1 of SOP 002 for preservation and storage procedures based on analytical parameter.

1. Includes F037, F038, K049, K050, K051, K169, K171, K172, D001, D018 and other uncharacterized sludges and solids.
2. Includes characterized and uncharacterized liquid wastes.

TABLE 4**Sample Preparation and Analytical Methods**

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

WASTE PARAMETER	SAMPLE EXTRACTION/ PREPARATION METHOD ⁽¹⁾	ANALYTICAL METHOD ⁽¹⁾
pH	N/A	9040B
Flash Point	N/A	1010
Releasable Cyanides	N/A	Section 7.3.3.2
Releasable Sulfides	N/A	Section 7.3.4.2
Volatile Organic Compounds	1311	8260B
Semi-Volatile Organic Compounds	1311	8270C
Arsenic	1311	6010B/6020/7060 ⁽³⁾
Barium	1311	6010B/6020/7080 ⁽³⁾
Cadmium	1311	6010B/6020/7130/7131A ⁽³⁾
Chromium	1311	6010B/6020/7190/7191 ⁽³⁾
Lead	1311	6010B/6020/7420/7421 ⁽³⁾
Mercury	1311	7470A/7471A ⁽³⁾
Selenium	1311	6010B/6020/7740/7741A/7742 ⁽³⁾
Silver	1311	6010B/6020/7760A/7761 ⁽³⁾

- (1) Unless otherwise specified, all methods are described in "Test Methods For Evaluating Solid Waste: Physical/Chemical Methods", SW-846, Third Edition, 1986. Appropriate analytical methods will be selected based on the sample matrix, interferences, detection limits, etc.
- (2) American Society for Testing and Materials, Philadelphia, Pa., "Annual Book of ASTM Standards".
- (3) SW-846 Method 6010B will be used unless a lower method detection limit is required.

TABLE 5**Sampling Frequency for Waste Re-evaluation**

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

WASTE ¹	WASTE PARAMETERS	FREQUENCY
Process Waste ²	Volatile Organic Compounds (TCLP) Semi-Volatile Organic Compounds (TCLP) Metals (TCLP)	(3)
Ignitable	Flash Point	(3)
Reactive	Releasable Cyanides Releasable Sulfides	(3)
Toxic (Benzene)	Benzene (TCLP)	(3)
Accumulated Liquid (HWSA Containment System)	Flash Point Benzene (TCLP)	Daily (4)
Unknown Waste	pH Flash Point Releasable Cyanides Releasable Sulfides Volatile Organic Compounds (TCLP) Semi-Volatile Organic Compounds (TCLP) Metals (TCLP)	Every Batch

1. If waste is classified as hazardous based on knowledge, such as U154 or laboratory waste, sampling and analysis will not be conducted.
2. Includes F037, F038, K049, K050, K051, K169, K171, K172 wastes.
3. Sampling and analysis will be performed based on the requirements of the off-site TSDF used to treat and/or dispose of the hazardous wastes, or at times when process changes may significantly impact the characteristics of the hazardous waste generated and stored at the hazardous waste storage area.
4. Sample collection will be performed upon discovery of standing liquids if containers storing free liquids are present in the HWSA.

TABLE 6

Land Disposal Restriction (LDR) Treatment Standards

Shell Chemical Yabucoa, Inc.
Yabucoa, Puerto Rico

WASTE	PARAMETERS	WASTEWATER (mg/L)	NON- WASTEWATER (mg/Kg)
Process Waste ¹	Acenaphthene	0.059	3.4 (NA for K051)
	Benzene	0.14	10
	Benz(a)anthracene	0.059	3.4
	Benzo(g,h,i)perylene (K169 only)	0.0055	1.8
	Benzo(a)pyrene	0.061	3.4
	bis(2-Ethylhexyl)phthalate	0.28	28
	Carbon disulfide (K049 only)	3.8	NA
	Chrysene	0.059	3.4
	2,4-Dimethylphenol (K049 only)	0.036	NA
	Di-n-butyl phthalate	0.057	28
	Ethylbenzene	0.057	10
	Fluorene	0.059	NA (3.4 for K169)
	Naphthalene	0.059	5.6
	Phenanthrene	0.059	5.6
	Phenol	0.039	6.2
	Pyrene	0.067	8.2
	Toluene	0.080	10
	Xylenes	0.32	30
	Cyanides (Total)	1.2	590
	Antimony (K172 only)	1.9	1.15 mg/L TCLP
	Arsenic (K171 & K172 only)	1.4	5.0 mg/L TCLP
	Chromium (Total)	2.77	0.6 mg/L TCLP
	Lead	0.69	0.75 mg/L TCLP
	Nickel	NA (3.98 for K171 & K172)	11 mg/L TCLP
	Vanadium (K171 & K172 only)	4.3	1.6 mg/L TCLP

1. Includes F037, F038, K049, K050, K051, K169, K171, K172 wastes.

WASTE	PARAMETERS	WASTEWATER (mg/L)	NON- WASTEWATER (mg/Kg)
Ignitable	----	Deactivation	Deactivation ⁽¹⁾
Reactive	Cyanides (Total)	---	590
	Cyanides (Amenable)	0.86	30
	Sulfides (K172 only)	Deactivation	Deactivation
Toxic (Benzene)	Benzene (TCLP)	0.14	10 ⁽¹⁾

(1) In addition, all underlying hazardous constituents must meet Universal Treatment Standards found at 40 CFR 268.48.

Waste Compatibility Matrix

Figure 1

Waste Compatibility Matrix

Reactivity group no.	Reactivity group name	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	101	102	103	104	105	106	107					
1	Acids, mineral, nonoxidizing	1																																													
2	Acids, mineral, oxidizing		2																																												
3	Acids, organic			3																																											
4	Alcohols and glycols				4																																										
5	Aldehydes					5																																									
6	Amines						6																																								
7	Amines, aliphatic and aromatic							7																																							
8	Azo compounds, diazo compounds, and hydrazines								8																																						
9	Carbonates									9																																					
10	Causics										10																																				
11	Cyanides											11																																			
12	Dithiocarbamates												12																																		
13	Esters													13																																	
14	Ethers														14																																
15	Fluorides, inorganic															15																															
16	Hydrocarbons, aromatic																16																														
17	Halogenated organics																	17																													
18	Isoocyanates																		18																												
19	Ketones																			19																											
20	Mercaptans and other organic sulfides																				20																										
21	Metals, alkali and alkaline earth, elemental																					21																									
22	Metals, other elemental & alloys as powders, vapors, or sponges																						22																								
23	Metals, other elemental & alloys as sheets, rods, drops, moldings, etc.																							23																							
24	Metals and metal compounds, toxic																								24																						
25	Nitrides																									25																					
26	Nitrides																										26																				
27	Nitro compounds, organic																											27																			
28	Hydrocarbons, aliphatic, unsaturated																												28																		
29	Hydrocarbons, aliphatic, saturated																													29																	
30	Peroxides and hydroperoxides, organic																														30																
31	Phenols and cresols																															31															
32	Organophosphates, phosphothioates, phosphodithioates																																32														
33	Sulfides, inorganic																																	33													
34	Epoxides																																		34												
101	Combustible and flammable materials, miscellaneous																																														
102	Explosives																																														
103	Polymerizable compounds																																														
104	Oxidizing agents, strong																																														
105	Reducing agents, strong																																														

ATTACHMENT A

Subject or Title:

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Sampling of Hazardous Sludges

SOP No. :
001

Revision No. :

Effective Date:

1.0 Introduction

The purpose of this Standard Operating Procedure (SOP) is to establish a protocol for sampling of hazardous sludges generated at the SCYI facility in order to ensure compliance with applicable Resource Conservation and Recovery Act (RCRA) regulations.

2.0 Sampling Method

- All sludge samples will be collected using a scoop as per ASTM D5633 and in accordance with procedures set forth in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods," SW-846.
- Prior to sampling, all sampling personnel will don appropriate personal protection equipment which includes, but not limited to, hard hats, coveralls (Tyvek Suits), gloves, safety goggles, steel toed boots, etc.

3.0 Type of Hazardous Waste Container**3.1 Drums**

- Sampling procedures presented in this SOP are applicable to 55 gallon drums, 30 gallon drums, and 1 cyd. sacks and bags.
- Open, sample and close each drum individually to minimize the risk of exposure.
- For drums with bungs, loosen the large bung slowly using non-sparking tools, whereas, for drums with removable lids, loosen the ring slowly with non-sparking manual wrench or air impact wrench.
- Don new pair of gloves prior to collecting each sample.
- All sampling equipment will be laboratory or factory-cleaned, or decontaminated in accordance with Section 5.0 of this SOP, prior to use.
- At a random location within the drum, scrap and clear the top 1 inch of the sludge with appropriate equipment. Collect a grab sample from the cleared location using a stainless steel scoop at depth no greater than 6 inches from the undisturbed sludge surface. Extraction of samples might require tilting of the container.
- Transfer the sample into a sample bottle/vial with the aid of a spatula.
- Follow the procedures provided in Section 6.1 for preservation and transport.

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Sampling of Hazardous Sludges

SOP No. :

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3.2 Roll-off Bins

- Open, sample and close each bin individually to minimize risk of exposure. Opening and closing of the covers on the bins will be conducted by a trained personnel using non-sparking equipment.
- Don new pair of gloves prior to collecting each sample.
- All sampling equipment will be laboratory or factory-cleaned, or decontaminated in accordance with Section 5.0 of this SOP, prior to use.
- For each bin sampled, at a random location within the bin, scrap and clear the top 1 inch of the sludge with appropriate equipment. Collect a grab sample from the cleared location using a stainless steel scoop at depth no greater than 6 inches from the undisturbed sludge surface.
- Transfer the sample into a sample bottle/vial with the aid of a spatula.
- Follow the procedures provided in Section 6.1 for preservation and transport.

4.0 **Number of Samples**

4.1 Homogeneous

- If the sludge contained in a group of containers (drums, sacks or bags, bins) is from a single source, (e.g., from a single tank or a single spill location), one sample (individual or composite based on the analytical parameter) will be collected from a single container (drum, sack or bag, bin) to be selected at random.

4.2 Heterogeneous

- If the sludge in a group of containers (drums, sacks or bags, bins) is from multiple or unknown sources, the following procedure (as per ASTM D140) will be followed to determine the number of containers (drums, sacks or bags, bins) to be sampled.
- Count the total number of containers (drums, bags or sacks, bins) in the batch to be sampled.
- Calculate the cube root of the total number of containers in the batch. The following table provides the number of containers to be samples for different population ranges.

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Sampling of Hazardous Sludges

SOP No. :

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Total No. of Containers	No. of Containers to be Sampled
2 to 8	2
9 to 27	3
28 to 64	4
65 to 125	5

- Select at random the number of containers (drums, bags or sacks, bins) to be sampled from the batch.
- Collect one sample from each container (drums, bags or sacks, bins) selected.

5.0 Decontamination Procedures

- Clean and decontaminate reusable sampling equipment as follows.
- Scrub all visual contamination from the field sampling equipment using a laboratory grade glassware detergent and tap water.
- Generously rinse with tap water.
- Finally, rinse with distilled and deionized water.
- Wrap the cleaned equipment with clean aluminum foil until use in the field.

6.0 QA/QC Procedures

6.1 Sample Collection and Handling

- Laboratory cleaned and appropriately labeled sampling containers will be supplied by the analytical laboratory, prior to the field sampling activity.
- Follow the table below for sample container, container volume, preservation and holding time for the samples collected as per this SOP.

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Sampling of Hazardous Sludges

SOP No. :
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Parameter	Sample Container	Container Volume	Preservation	Maximum Holding Time
Volatile Organic Compounds	Wide mouth Glass, Teflon liner cap	4 oz	Cool to 4°C	14 days
Semi-Volatile Organic Compounds	Wide mouth Glass, Teflon liner cap	8 oz	Cool to 4°C	14 days
Metals (except Cr VI and Hg)	Plastic or Glass	4 oz	Cool to 4°C	180 days
Hg	Plastic or Glass	4 oz	Cool to 4°C	28 days
Hazardous Characteristic	Plastic or Glass	8 oz	NA	NA

- Log the date, time, name of sampling personnel, sample ID, sampling matrix, analytical parameters, etc. in a field log book.
- Fill out a chain-of-custody form supplied by the laboratory analyzing the samples. A sample chain-of-custody form is attached.

6.2 QA/QC Samples

- Duplicates - For drums, bags or sacks, and bins, collect a duplicate sample for every 20 samples collected. Collect the duplicate sample from the same container (drums, bags or sacks, bins) as the original sample, but from a different location. Follow the procedure as per Section 3.0 for collecting duplicate samples.
- Field Blanks - Field blanks will be collected and analyzed for volatile organics if the field samples collected during a sampling event are analyzed for volatile organics. One field blanks will be collected for every 20 samples collected or for every sampling event if the number of samples collected is less than 20.
- Trip Blanks - Trip blanks are not required for sludge (non-aqueous matrix) sampling.

CHAIN - OF - CUSTODY RECORD

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Subject or Title:

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Sampling of Hazardous Liquids

SOP No. :
002

Revision No. :

Effective Date:

1.0 Introduction

The purpose of this Standard Operating Procedure (SOP) is to establish a protocol for sampling of liquid hazardous waste generated at the SCYI facility in order to ensure compliance with applicable Resource Conservation and Recovery Act (RCRA) regulations.

2.0 Sampling Method

- All liquid hazardous waste samples will be collected using a disposable polyethylene Coliwasa sampler as per ASTM D5495 and in accordance with procedures set forth in "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods", SW-846.
- Prior to sampling, all sampling personnel will don appropriate personal protection equipment including, but not limited to, hard hats, coveralls (Tyvek Suits), gloves, safety goggles, steel toed boots, etc.

3.0 Type of Hazardous Waste Container

3.1 Drums

- Sampling procedures presented in this SOP are applicable to 55 gallon drums, 30 gallon drums and other liquid waste storage containers.
- Open, sample and close each drum individually to minimize the risk of exposure.
- For drums with bungs, loosen the large bung slowly using non-sparking tools, whereas, for drums with removable lids, loosen the ring slowly with non-sparking manual wrench or air impact wrench.
- Don new pair of gloves prior to collecting each sample.
- All sampling equipment will be laboratory or factory-cleaned, or decontaminated in accordance with Section 5.0 of this SOP, prior to use.
- With the sampler in the open position, collect a sample by vertically inserting the Coliwasa into the liquid waste drum or container. The sample is collected from a depth midway between the top and the bottom of the drum.
- Collect the sample at the desired depth by rotating the handle until one leg of the T is squarely perpendicular against the locking block.

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Sampling of Hazardous Liquids

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- Upon sample collection, rotate the handle back to the closed position by turning the handle until one leg of the T is parallel to the locking block.
- Withdraw the sampler and transfer the sample into the sample bottle/vial. Use a funnel to avoid spillage if necessary.
- Follow the procedures provided in Section 6.1 for preservation and transport.
- Dispose of the sampler as a hazardous waste.

4.0 Number of Samples**4.1 Homogeneous Wastes**

- If the waste liquid contained in a group of drums or other containers is from a single source, (e.g., from a single tank or a single spill location), one grab sample will be collected from a single drum or container to be selected at random.

4.2 Heterogeneous Wastes

- If the waste liquid in a group of drums or other containers is from multiple or unknown sources, the following procedure (as per ASTM D140) will be followed to determine the number of drums or containers to be sampled.
- Count the total number of drums or containers in the batch to be sampled.
- Calculate the cube root of the total number of drums or containers in the batch. The following table provides the number of drums or containers to be sampled for different population ranges.

Total No. of Drums or Containers	No. of Drums or Containers to be Sampled
2 to 8	2
9 to 27	3
28 to 64	4
65 to 125	5

Subject or Title:

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Sampling of Hazardous Liquids

SOP No. :
002

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- Select at random the number of drums or containers to be sampled from the batch.
- Collect one grab sample from each drum or container selected.

5.0 Decontamination Procedures

- Clean and decontaminate reusable sampling equipment as follows.
- Scrub all visual contamination from the field sampling equipment using a laboratory grade glassware detergent and tap water.
- Generously rinse with tap water.
- Rinse with distilled and deionized water.
- If sample is to be analyzed for metals, rinse the equipment with 10% nitric acid (trace metal or higher grade) diluted with distilled and deionized water. Rinse with distilled and deionized water.
- If sample is to be analyzed for organics, rinse the equipment with Acetone (pesticide grade) and air dry. Rinse with distilled and deionized water.
- Wrap the cleaned equipment with clean aluminum foil until use in the field.

6.0 QA/QC Procedures

6.1 Sample Collection and Handling

- Laboratory-cleaned and appropriately labeled sampling containers will be supplied by the analytical laboratory prior to the field sampling activity.
- Follow the table below for sample container, container volume, preservation and holding time for the samples collected as per this SOP.

Subject or Title:

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Sampling of Hazardous Liquids

SOP No. :

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Parameter	Sample Container	Container Volume	Preservation	Maximum Holding Time
Volatile Organic Compounds	Glass vial, Teflon lined septum cap	40 ml	4 drops of conc. HCl, Cool to 4°C	14 days
Semi-Volatile Organic Compounds	Amber Glass, Teflon liner cap	1 gallon	Cool to 4°C	Extraction 7 days; Analysis 40 days from extraction
Metals (except Cr VI and Hg)	Plastic or Glass	600 ml	Add HNO ₃ to pH < 2, Cool to 4°C	180 days
Hg	Plastic or Glass	400 ml	Add HNO ₃ to pH < 2, Cool to 4°C	28 days
Hazardous Characteristic	Plastic or Glass	500 ml	NA	NA

- Log the date, time, name of sampling personnel, sample ID, sampling matrix, analytical parameters, etc. in a field log book.
- Fill out a chain-of-custody form supplied by the laboratory analyzing the samples. A sample chain-of-custody form is attached.

6.2 QA/QC Samples

- Duplicates - For drums or containers, collect a duplicate sample for every 20 samples collected. Follow the procedure as per Section 3.0 for collecting duplicate samples. Collect the duplicate with original sample by alternately filling the sample containers from the same sampling device.
- Field Blanks - Field blanks will be collected and analyzed for the same parameters as the field samples. One field blank will be collected for every 20 samples collected or for every sampling event if the number of samples collected is less than 20.
- Trip Blanks - Trip blanks are required for liquid waste (aqueous matrix) sampling. The trip blanks consist of sample containers filled with laboratory-demonstrated analyte free water. These samples accompany the bottles that are prepared at the lab into the field and back to the laboratory along with the collected samples for analysis. Trip blanks will be analyzed for volatile organics. One trip blank will be included per sample shipment.

CHAIN - OF - CUSTODY RECORD

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Appendix Q-1

Hazardous Wastes Laboratory Analysis

PUERTO RICO SUN OIL CORPORATION
PO BOX 186
YABUCOA, PR 00767

ATTN: MRS. JULIE ROSADO

DS# 99-0371

Sample collected by Client

Limit = Maximum Contaminant Level

Date: August 26, 1999

Work Order #: 147-01-05

EQ Lab Sample #: 99-07D24

Date Sample collected: 07/30/99

Date Sample received: 07/30/99

Source: Catalyst 324

Description: Solid - Grab

SAMPLE IDENTIFICATION

Sample
Number
1

Sample
Description
Catalyst 324

Sample
Number

Sample
Description



A 604163

Order # 99-07-D24
08/26/99

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TEST RESULTS BY SAMPLE

Sample: 01A Catalyst 324
Job: 02-04 Solid - Grab

Collected: 07/30/99

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
TCLP EXTRACTION					
Zero Headspace Ext.			on	08/02/99	JFD
Semi-Vol. & Metals Ext.			on	08/02/99	HC
TCLP METALS					
Total Arsenic	0.027	5.0	mg/L	08/03/99	GR
Total Barium	<0.1	100	mg/L	08/03/99	GR
Total Cadmium	<0.002	1.0	mg/L	08/03/99	GR
Total Chromium	0.051	5.0	mg/L	08/03/99	GR
Total Lead	<0.005	5.0	mg/L	08/03/99	GR
Total Mercury	<0.002	0.20	mg/L	08/04/99	JC
Total Selenium	<0.001	1.0	mg/L	08/03/99	GR
Total Silver	0.020	5.0	mg/L	08/03/99	GR
CORROSIVITY					
pH	10.16	2.0-12.5	S.U.	07/30/99	FMR
IGNITABILITY					
	Does not ignite			08/04/99	FMR
REACTIVITY					
Releasable Cyanide	<1.0	250	mg/kg	08/06/99	LS
Releasable Sulfide	<1.0	500	mg/kg	08/02/99	MG
TCLP VOLATILES					
Benzene	<0.10	0.50	mg/L	08/03/99	IPM
Carbon Tetrachloride	<0.10	0.50	mg/L	08/03/99	IPM
Chlorobenzene	<0.10	100	mg/L	08/03/99	IPM
Chloroform	<0.10	6.0	mg/L	08/03/99	IPM
1,4-Dichlorobenzene	<0.10	7.5	mg/L	08/03/99	IPM
1,2-Dichloroethane	<0.10	0.50	mg/L	08/03/99	IPM
1,1-Dichloroethene	<0.10	0.70	mg/L	08/03/99	IPM
Tetrachloroethene	<0.10	0.70	mg/L	08/03/99	IPM
Trichloroethene	<0.10	0.50	mg/L	08/03/99	IPM
Vinyl Chloride	<0.10	0.20	mg/L	08/03/99	IPM
Methyl Ethyl Ketone	<1.0	200	mg/L	08/03/99	IPM
TCLP SEMI-VOLATILES					
Pyridine	<5.0	5.0	mg/L	08/08/99	ASA
Nitrobenzene	<0.1	2.0	mg/L	08/08/99	ASA
2,4-Dinitrotoluene	<0.1	0.13	mg/L	08/08/99	ASA
Hexachlorobenzene	<0.001	0.13	mg/L	08/08/99	ASA
Hexachloro-1,3-Butadiene	<0.01	0.50	mg/L	08/08/99	ASA
Hexachloroethane	<0.01	3.0	mg/L	08/08/99	ASA

Order # 99-07-D24
08/26/99

Page 3

TEST RESULTS BY SAMPLE

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
Pentachlorophenol	<0.1	100	mg/L	08/08/99	ASA
2,4,6-Trichlorophenol	<1.0	400	mg/L	08/08/99	ASA
2,4,6-Trichlorophenol	<1.0	2.0	mg/L	08/08/99	ASA
o-Cresol - Note #1	<1.0	200	mg/L	08/08/99	ASA
m.p-Cresol - Note #1	<1.0	200	mg/L	08/08/99	ASA
Extraction Date			on	08/08/99	HC

TCLP PESTICIDES

Chlordane	<0.003	0.030	mg/L	08/08/99	JOA
Methoxychlor	<0.010	10	mg/L	08/08/99	JOA
Toxaphene	<0.050	0.50	mg/L	08/08/99	JOA
Lindane	<0.005	0.40	mg/L	08/08/99	JOA
Heptachlor	<0.005	0.0080	mg/L	08/08/99	JOA
Heptachlor Epoxide	<0.005	0.0080	mg/L	08/08/99	JOA
Endrin	<0.005	0.020	mg/L	08/08/99	JOA
Extraction Date			on	08/03/99	HC

TCLP HERBICIDES

2,4,5-TP (Silvex)	<0.010	1.0	mg/L	08/08/99	JOA
2,4-D	<0.100	10	mg/L	08/08/99	JOA
Extraction Date			on	08/03/99	JFD

Note:

#1) Where cresols cannot be differentiated regulatory level for Total Cresol is 200 mg/L.

PUERTO RICO SUN OIL CORPORATION
P.O. BOX 186
YABUCOA, P.R. 00767

Attn: MRS. JULIE ROSADO

Order #: 17430
Date: March 01, 2000
Work ID: Solid - Grab
Date Received: 02/24/00
Date Completed: 03/01/00
Client Code: 147-01

DS#: 99-11465

Sample collected by client

Limit = Maximum Contaminant Level

SAMPLE IDENTIFICATION

Sample
Number
→ 01

Sample
Description
Katalco 46-1, 46.46-4

Sample
Number

Sample
Description



ENVIRONMENTAL QUALITY LABORATORIES, INC.

P.O. BOX 11458, SAN JUAN, P.R. 00910-1458 • TEL: (787) 725-5333 • FAX (787) 724-3110



Order # : 17430

03/01/00

Page 2

TEST RESULTS BY SAMPLE

Sample: 01A Katalco 46-1, 46-4
Job: 01-05 Solid - Grab

Collected: 02/23/00

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
TCLP EXTRACTION					
Zero Headspace Ext.			on	02/25/00	CIL
Semi-Vol. & Metals Ext.			on	02/25/00	CIL
TCLP METALS					
Total Arsenic	<0.003	5.0	mg/L	02/28/00	GR
Total Barium	<0.1	100	mg/L	02/28/00	GR
Total Cadmium	<0.002	1.0	mg/L	02/28/00	GR
Total Chromium	<0.002	5.0	mg/L	02/28/00	GR
Total Lead	<0.005	5.0	mg/L	02/28/00	GR
Total Mercury	<0.002	0.20	mg/L	02/28/00	GR
Total Selenium	<0.001	1.0	mg/L	03/01/00	JC
Total Silver	<0.001	5.0	mg/L	02/28/00	GR
CORROSIVITY					
pH	10.85	2.0-12.5	S.U.	02/25/00	FMR
IGNITABILITY	Does not ignite			03/01/00	FMR
REACTIVITY					
Releasable Cyanide	<1.0	250	mg/kg	02/29/00	KV
Releasable Sulfide	<1.0	500	mg/kg	02/28/00	MG
TCLP VOLATILES					
Benzene	<0.10	0.50	mg/L	02/26/00	IPM
Carbon Tetrachloride	<0.10	0.50	mg/L	02/26/00	IPM
Chlorobenzene	<0.10	100	mg/L	02/26/00	IPM
Chloroform	<0.10	6.0	mg/L	02/26/00	IPM
1,4-Dichlorobenzene	<0.10	7.5	mg/L	02/26/00	IPM
1,2-Dichloroethane	<0.10	0.50	mg/L	02/26/00	IPM
1,1-Dichloroethene	<0.10	0.70	mg/L	02/26/00	IPM
Tetrachloroethene	<0.10	0.70	mg/L	02/26/00	IPM
Trichloroethene	<0.10	0.50	mg/L	02/26/00	IPM
Vinyl Chloride	<0.10	0.20	mg/L	02/26/00	IPM
Methyl Ethyl Ketone	<1.00	200	mg/L	02/26/00	IPM



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Order #: 17430
03/01/00

Page 3

TEST RESULTS BY SAMPLE

Sample: 01A Katalco 46-1, 46-4
Job: 01- 05 Solid - Grab

Collected: 02/23/00

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
TCLP SEMI-VOLATILES					
Pyridine	<1.0	5.0	mg/L	02/28/00	ASA
Nitrobenzene	<1.5	2.0	mg/L	02/28/00	ASA
2,4-Dinitrotoluene	<0.10	0.13	mg/L	02/28/00	ASA
Hexachlorobenzene	<0.01	0.13	mg/L	02/28/00	ASA
Hexachloro-1,3-Butadiene	<0.25	0.50	mg/L	02/28/00	ASA
Hexachloroethane	<0.20	3.0	mg/L	02/28/00	ASA
Pentachlorophenol	<3.0	100	mg/L	02/28/00	ASA
2,4,5-Trichlorophenol	<0.05	400	mg/L	02/28/00	ASA
2,4,6-Trichlorophenol	<0.5	2.0	mg/L	02/28/00	ASA
o-Cresol - Note #1	<1.0	200	mg/L	02/28/00	ASA
m,p-Cresol - Note #1	<1.0	200	mg/L	02/28/00	ASA
Extraction Date			on	02/26/00	CIL
TCLP PESTICIDES					
Chlordane	<0.003	0.030	mg/L	03/01/00	JOA
Methoxychlor	<0.010	10	mg/L	03/01/00	JOA
Toxaphene	<0.050	0.50	mg/L	03/01/00	JOA
Lindane	<0.005	0.40	mg/L	03/01/00	JOA
Heptachlor	<0.005	0.0080	mg/L	03/01/00	JOA
Heptachlor Epoxide	<0.005	0.0080	mg/L	03/01/00	JOA
Endrin	<0.005	0.020	mg/L	03/01/00	JOA
Extraction Date			on	02/26/00	CIL
TCLP HERBICIDES					
2,4,5-TP (Silvex)	<0.010	1.0	mg/L	03/01/00	JOA
2,4-D	<0.100	10	mg/L	03/01/00	JOA
Extraction Date			on	02/26/00	CIL

Note:

#1) Where cresols cannot be differentiated regulatory level for Total Cresol is 200 mg/L.



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TOTAL P.10

.....
 DRYING
 BEDS - Biological
 TCLP Sludge

PUERTO RICO SUN OIL CORPORATION
 P.O. BOX 186
 YABUCOA, P.R. 00767

Attn: MRS. JULIE ROSADO

Order #: 8873

Date: February 01, 00

Work ID: Solid - Grab

Date Received: 01/26/00

Date Completed: 02/01/00

Client Code: 147-01

DS#: 99-11463

Sample collected by client

Limit = Maximum Contaminant Level

SAMPLE IDENTIFICATION

Sample
Number

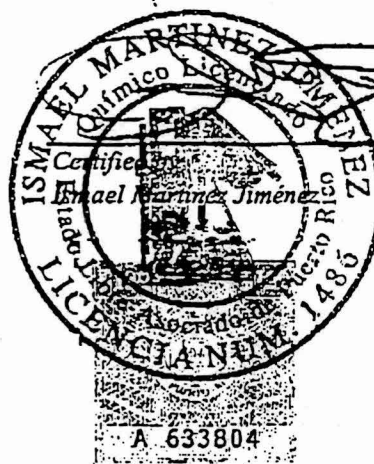
1

Sample
Description
Sand Drying Beds

- BIOLOGICAL
 SLUDGE

Sample
Number

Sample
Description



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Order #: 8873

02/01/00

Page 2

TEST RESULTS BY SAMPLEBIOLOGICAL SLUDGE

Sample: 01A Sand Drying Beds

Job: 01-05 Solid - Grab

Collected: 01/26/00

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
TCLP EXTRACTION					
Zero Headspace Ext.			on	01/28/00	HC
Semi-Vol. & Metals Ext.			on	01/27/00	HC
TCLP METALS					
Total Arsenic	<0.003	5.0	mg/L	01/31/00	JAG
Total Barium	<0.1	100	mg/L	01/31/00	JAG
Total Cadmium	<0.002	1.0	mg/L	01/31/00	JAG
Total Chromium	<0.002	5.0	mg/L	01/31/00	JAG
Total Lead	<0.005	5.0	mg/L	01/31/00	JAG
Total Mercury	<0.002	0.20	mg/L	02/01/00	JC
Total Selenium	<0.001	1.0	mg/L	01/31/00	JAG
Total Silver	<0.001	5.0	mg/L	01/31/00	JAG
CORROSIVITY					
pH	7.18	2.0-12.5	S.U.	01/27/00	FMR
IGNITABILITY	Does not ignite			01/27/00	FMR
REACTIVITY					
Releasable Cyanide	<1.0	250	mg/kg	02/01/00	LS
Releasable Sulfide	12.4	500	mg/kg	01/28/00	MG
TCLP VOLATILES					
Benzene	<0.10	0.50	mg/L	01/29/00	JDA
Carbon Tetrachloride	<0.10	0.50	mg/L	01/29/00	JDA
Chlorobenzene	<0.10	100	mg/L	01/29/00	JDA
Chloroform	<0.10	6.0	mg/L	01/29/00	JDA
1,4-Dichlorobenzene	<0.10	7.5	mg/L	01/29/00	JDA
1,2-Dichloroethane	<0.10	0.50	mg/L	01/29/00	JDA
1,1-Dichloroethene	<0.10	0.70	mg/L	01/29/00	JDA
Tetrachloroethene	<0.10	0.70	mg/L	01/29/00	JDA
Trichloroethene	<0.10	0.50	mg/L	01/29/00	JDA
Vinyl Chloride	<0.10	0.20	mg/L	01/29/00	JDA
Methyl Ethyl Ketone	<1.00	200	mg/L	01/29/00	JDA



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Order #: 8873

02/01/00

TEST RESULTS BY SAMPLEBIOLOGICAL SLUDGE

Sample: 01A Sand Drying Beds
Job: 01-05 Solid - Grab

Collected: 01/26/00

<u>Test Description</u>	<u>Result</u>	<u>Limit</u>	<u>Units</u>	<u>Analyzed</u>	<u>By</u>
TCLP SEMI-VOLATILES					
Pyridine	<1.0	5.0	mg/L	01/31/00	ASA
Nitrobenzene	<1.5	2.0	mg/L	01/31/00	ASA
2,4-Dinitrotoluene	<0.10	0.13	mg/L	01/31/00	ASA
Hexachlorobenzene	<0.01	0.13	mg/L	01/31/00	ASA
Hexachloro-1,3-Butadiene	<0.25	0.50	mg/L	01/31/00	ASA
Hexachloroethane	<0.20	3.0	mg/L	01/31/00	ASA
Pentachlorophenol	<3.0	100	mg/L	01/31/00	ASA
2,4,5-Trichlorophenol	<0.05	400	mg/L	01/31/00	ASA
2,4,6-Trichlorophenol	<0.5	2.0	mg/L	01/31/00	ASA
o-Cresol - Note #1	<1.0	200	mg/L	01/31/00	ASA
m,p-Cresol - Note #1	<1.0	200	mg/L	01/31/00	ASA
Extraction Date			on	01/28/00	CIC
TCLP PESTICIDES					
Chlordane	<0.003	0.030	mg/L	01/29/00	JOA
Methoxychlor	<0.010	10	mg/L	01/29/00	JOA
Toxaphene	<0.050	0.50	mg/L	01/29/00	JOA
Lindane	<0.005	0.40	mg/L	01/29/00	JOA
Heptachlor	<0.005	0.0080	mg/L	01/29/00	JOA
Heptachlor Epoxide	<0.005	0.0080	mg/L	01/29/00	JOA
Endrin	<0.005	0.020	mg/L	01/29/00	JOA
Extraction Date			on	01/28/00	CIC
TCLP HERBICIDES					
2,4,5-TP (Silvex)	<0.010	1.0	mg/L	01/29/00	JOA
2,4-D	<0.100	10	mg/L	01/29/00	JOA
Extraction Date			on	01/28/00	CIC

Note:

#1) Where cresols cannot be differentiated regulatory level for Total Cresol is 200 mg/L.



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SHELL CHEMICAL YABUCOA INC.

Attachment II-2

***SECURITY & PROCEDURES
TO
PREVENT HAZARDS***

5.0 PROCEDURES TO PREVENT HAZARDS

The following section describes procedures conducted at the SCYI facility to prevent hazards.

5.1 Security Measures

SCYI has developed security procedures to prevent unauthorized entry into the plant site. The Refinery, Tank Farm, and Dock Areas are surrounded by an 8-foot high, chain link fence topped by three strands of barbed wire. A guard post at the main gate ensures that initial contact is made with every person coming into the Refinery. Visitors must go through sign-in procedures upon entering and check-out procedures when leaving. The main gate is occupied by one guard 24 hours a day, 7 days a week.

Entrance to the Tank Farm is provided through two gates. One gate is controlled by a card operated access control system and is authorized for use only by SCYI employees. A guard is on watch at the other gate from 6 AM to 4 PM. At other times, the gate is controlled by a card operated access control system and is authorized for use only by SCYI employees. Access by others must be approved by the guard at the main gate or other security personnel in the Tank Farm or Dock Area.

Entrance to the Dock Area is provided through a single gate. A guard is on watch at the gate from 6 AM to 4 PM. At other times, the gate is controlled by a card operated access control system and is authorized for use only by SCYI employees. Access by others must be approved by the guard at the main gate or other security personnel in the Tank Farm or Dock Area.

An internal telephone system is provided in the process areas for communication to and from the main control rooms. The base station for the radio system is located in the main gate. All buildings have telephone facilities for communication outside the Refinery Area. Additionally, plant-wide surveillance using a closed-circuit television system provides increased security across the Refinery.

The HWSA is completely surrounded by a fence. The entrance to this area is kept locked at all times except for authorized personnel entry.

5.1.1 Refinery Perimeter Fence

The perimeter fence surrounding the Refinery prevents the unauthorized entry of persons or livestock onto the active portion of the facility. General requirements for the material, fabrication, and erection of the galvanized, diamond-mesh, chain-link fence are as follows:

- Fence Height. The perimeter fence around the plant, around the water wells, and around the tankage area all have three strands of barbed wire above an 8-foot high fence. All interior fences have three strands of barbed wire above a 6-foot high fence.
- Galvanizing. Hot dipped galvanizing with a minimum coating of 2 oz/sq ft.
- Dimensions for components of the 8-foot high fence. Line post: 2½ inch outside diameter standard pipe. End, corner, and pull posts: 3 inch outside diameter standard pipe.

5.1.2 Warning Signs

SCYI has implemented security measures to control site egress and ingress. Perimeter fencing prohibits unauthorized or illegal entry. SCYI security personnel conduct weekly inspections of the fencing and gate system. Legible warning signs and lighting are present at the hazardous waste facilities to provide adequate warning. The perimeter fence for the Refinery and Tank Farm Areas will prevent the unauthorized entry of persons or livestock onto the active portion of the facility. The schematics for perimeter fences around the Refinery and Tank Farm Areas are provided in Appendix L-1 and L-2, respectively.

Security for the HWSA unit has been provided as follows:

- Warning signs are posted around the facility with the following legend: "Danger, Unauthorized Personnel Keep Out" in English and Spanish.
- All gates are locked. Only authorized personnel are allowed to take the key from the main gate guard house.

Following this section is a detailed discussion of the security procedures and equipment as required by 40 CFR 264.14. Additional security measures are delineated in the SCYI Contingency Plan provided in Section 7.0.

5.1.3 Surveillance System

SCYI has a system of constant surveillance throughout the plant site to provide for more effective security control. In the Refinery Area, a guard post overlooks the main entrance and monitors all entrances and exits used by employees and visitors. The guard post is manned 24 hours a day, 7 days a week.

Access to the process areas for vehicles is controlled by a barrier gate and a sliding gate operated only by the guard at the main gate. Foot access to these areas is controlled by two turnstile units requiring proper entrance authorization.

A closed-circuit television system monitors activity in the Refinery Areas that do not have guards on constant patrol. The location of the access controls at the SCYI Refinery is provided in Appendix C-3.

SCYI has low-light cameras in explosion-proof enclosures that monitor the following areas:

- Main Entrance and Contractor Parking Lot: To cover contractor's parking, main road and main gate area.
- Parking Lot: To cover parking, service, and administration buildings, and the process area.
- Intermediate Tankage Area: To cover the south perimeter, back side of the Administration Building, and the process and recreation areas.
- Fire School Area: To cover the west perimeter, the Santiago Creek, resident contractor's shop and the gasoline reformer area.

- Maintenance Shop Area: To cover the shop and warehouse, main substation, and process area and WWTa.
- Truck Loading Rack Area: To cover the Truck Loading Rack, Tank Farm entrance gate, and the Tank Farm West and South Areas.
- Tank Farm Pipe Sleepers: To cover the Tank Farm North and East Areas.
- Marine Terminal and Dock Area: To cover the Main Dock,
- Marine Department Building, Tug Boats Dock, Barge Loading Facilities, and the entire area towards the north branch.

The Refinery Area cameras are monitored and controlled from the Tank Farm gate. The Tank Farm and Dock Area cameras are monitored and controlled from the two gates. They are equipped with motion sensor devices with monitor alarms and also have a video tape system. Each camera displays its picture on a 9-inch monitor.

Additionally, SCYI has developed a program to control the entrance of employees, contractors, and visitors (both during and after hours). Additional information concerning security measures at SCYI is supplied in the SCYI Contingency Plan provided in Section 7.0.

In compliance with 40 CFR 264.14(c), SCYI has posted high-visibility warning signs bearing the marking, "Danger -- Unauthorized Personnel Keep Out." The legend is printed in both English and Spanish and is visible from a distance of at least 25 ft. These signs are posted at each of the entrance gates to the SCYI facility. They are also posted on the perimeter fence at regular intervals. These signs will also be posted at various locations throughout the HWSA. Locations are discussed in Section 3.3 and illustrated in Figure 3-5.

5.1.4 Alarm System

The nearest alarm for the HWSA is located in the utility control room building, approximately 1,000 ft southwest of the HWSA. In the event of an emergency situation, this alarm, as well as two other alarms located at the main gate and the main control room, will be

sounded. Due to the nature of the facility operations, the alarm system is tested on a weekly basis every Friday at 12:00 noon time.

The procedures used to sound the alarm by employees working at the HWSA are those which all employees at SCYI are trained to follow. In the event of an emergency, these employees are trained to react by dialing the emergency extension number 8888. Either the guard on duty at the main gate, or the authorized person receiving the call at the utility control room or the main control room, are trained to activate only after both the exact location of the emergency and the name of the person reporting the emergency have been recorded. Appendix M-1 illustrates the location of the alarm and telephone nearest the HWSA.

Operator supervisors, unit operators, maintenance supervisors, and resident contractor supervisors all carry a two-way radio which is in contact with the control center at the main site. The telephone nearest the HWSA is located in the WWTa, approximately 500 ft southwest of the HWSA. Also, immediately available in the area of the HWSA are hand-held, two-way radios that are assigned to SCYI operations personnel.

The classroom sessions of the SCYI Training Program consist of a slide and tape presentation and a discussion covering the evolution of environmental regulations applicable to SCYI's waste management practices. The basic contents of the SCYI Contingency Plan are presented to acquaint personnel with emergency response procedures. The operation of communications and alarm systems, location and operation of emergency equipment, power, and the evacuation plan and route are covered during the classroom training sessions.

Labels which bear the legend, "To Report a Fire, Dial 8888" are posted on all telephones within the Refinery and Tank Farm Areas. These signs also assist SCYI employees to maintain their familiarization with the emergency extension (8888) procedure.

5.1.5 Decontamination and Fire Control Equipment

Steam cleaners and water trucks are available for use as decontamination equipment by SCYI. Should any fire occur within the HWSA, the foreperson on duty will be immediately notified. Following his assessment of the situation and the extent of release of toxic or hazardous materials, the shift foreperson will alert the remainder of the plant via the emergency phone system. If necessary, the emergency response team brigade will be notified and asked to report to

the emergency scene. The team has been trained to respond to fires that could occur at the HWSA, and has also been made aware with the hazardous characteristics of wastes that would be involved in the fire. The response personnel are outfitted with all the equipment necessary to extinguish possible fires in that facility.

Sufficient aisle space is and will be maintained at the HWSA to allow for the unobstructed movement of personnel, fire protection equipment, and lifting equipment to any area within the facility. The minimum 2-foot aisle space will be sufficient to combat any minor emergency that may occur within the building. In the event of a major fire, fire fighting crews will conduct fire fighting operations from outside of the HWSA.

A list of emergency response equipment required to respond to a release of hazardous waste or other emergency is located throughout the Contingency Plan (Appendix U-1).

5.1.6 Water for Fire Control

The facility has two (2) fire water basins, one at the Refinery Area and the other at the Tank Farm Area, which provide approximately 4.3 million gallons of water for fire fighting. In addition, there are well water supplies that can be connected to the system if necessary providing approximately 1500 gpm of additional water. There are seven (7) pumps (150 psi-1500-1800 gpm, each) that supply the necessary pressure to meet the facility needs for this purpose.

5.2 General Inspection Requirements

SCYI has developed and implemented an inspection schedule which describes procedures for preventing releases of hazardous waste and hazardous constituents which may threaten human health and the environment. The information in this section is provided in accordance with the requirements of 40 CFR 270.14(b)(5) and 40 CFR 264 Subpart I. SCYI inspects all HWSA facilities for malfunction and deterioration, and other conditions that may lead to release of hazardous waste constituents. A brief description of the inspection procedures is provided below. Appendix O provides additional information on the general inspection schedule.

5.2.1 Hazardous Waste Storage Area Facility Inspection

This facility is inspected weekly when not in use and daily when in use. The inspections are conducted by the Health, Safety and Environmental Group (HSEG). A log is used to record all the information obtained during the inspection. The inspection records are maintained in the HSEG files.

The general weekly inspection procedures for containerized hazardous wastes provide for particular attention to be paid to any sign of leaks, spills, and deterioration of containers (drums, roll-off bins and other containers) caused by corrosion and other factors. If any containers show evidence of damage or leakage, the SCYI maintenance department transfers the waste into a container in good condition. All corrective actions are logged onto the inspection schedule checklist for containers.

A more detailed discussion on the inspection procedures used by SCYI to assure good condition and proper management of the containers, dumpsters, and the HWSA is provided in the General Inspection Schedule located in Appendix O.

Hazardous wastes are stored in containers and dumpsters with liners made of materials compatible with the waste to ensure that no undesirable or dangerous reactions between the wastes and containers/dumpsters will occur.

All containerized hazardous wastes stored in the HWSA are sealed to prevent accidental spillage or leakage. Adequate aisle space (a minimum of 2 ft in width) is maintained for all aisles. Handling of the wastes is accomplished using extreme caution with correct safety precautions implemented.

An inspection log for the SCYI HWSA is provided in Appendix O. During the weekly or daily inspection of the HWSA, personnel performing the inspection note the following items:

- Container type (i.e., drum or roll-off), contents and labeling. The contents are verified to ensure that they match the USEPA hazardous waste identification number placed on the container and to ensure that containers have appropriate dates and hazard labels.
- Container condition. Each container is inspected for evidence of leakage or damage.

- Seal condition. All containers are checked to ensure they are sealed.
- Condition of container storage areas. Container storage areas are inspected for cracks or gaps in pad or curbing, and for ponding or evidence of leakage.
- Containment system. The containment system is inspected for gaps, cracks, or evidence of run-off.
- Storage arrangement. All access aisles are inspected to ensure that a minimum 2 foot aisle width is maintained and that container labels can be read from the aisle.
- Security and emergency equipment. Perimeter fence, warning signs, locks, communication equipment, etc. is inspected for proper condition.

The HWSA is designed to contain any waste spillage or leakage in accordance with 40 CFR 264.175(a) and 264.175(b). The concrete floors are inspected for cracks, gaps, or other defects due to aging or wear. No incompatible wastes are stored in the HWSA.

5.2.2 Other Areas - Inspection

Inspections of emergency, safety and security facilities throughout the SCYI facility are conducted by various SCYI personnel. Inspection of such equipment and facilities is intended to ensure response preparedness in the event of an emergency situation anywhere at the facility, such as the process area, bulk storage tanks or loading docks. These inspections are not the responsibility of the Environmental Engineering Group. Rather, it is the responsibility of these other personnel to ensure that equipment is ready in the event of an emergency at the HWSA or at any other location at which hazardous waste may pose a threat of emergency. These responsibilities are summarized below:

- All Refinery Area equipment and facilities are inspected by the SCYI inspection department, in coordination with the Maintenance Department Preventative Maintenance Program.
- All safety and emergency equipment, facilities, and procedures are inspected by the Fire and Safety Group. Inspection records are kept in the Fire and Safety Group's file.

- All security devices and procedures are inspected by the Health, Safety And Environmental Supervisors. Inspection records are kept in the supervisors' file.

Copies of typical inspection logs for emergency, safety and security inspections are presented in Appendix O. If inspections reveal that non-emergency maintenance is needed, it will be completed as soon as possible to preclude further damage and reduce the need for emergency repairs. If a hazard is imminent or has already occurred during the course of an inspection or any time between inspections, remedial action will be taken immediately. SCYI personnel will make the necessary notifications and initiate remedial actions. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing it, and subsequently decontaminating the affected area. Refer to the Contingency Plan (Section 7.0) for further details.

5.2.3 Inspection Schedule

Copies of typical inspection logs used for inspecting safety, emergency, and communications equipment have been provided by SCYI in Appendix O, including the following:

- List of Activities for Safety.
- List of Activities for Industrial Hygiene.
- Inspection form for self-contained breathing apparatus.
- Daily fire truck check list.
- Periodic inspection record log for maintenance on portable type fire extinguishers.
- Periodic inspection record log for maintenance on wheeled-type tire extinguishers.
- List of Activities for Fires.

- Telephone, two-way radio, and pager inspection and repair log. A copy of a daily inspection log has been provided.
- Alarm testing log. A copy of a weekly testing log has been provided.

5.3 General Requirements for Ignitable, Reactive, or Incompatible Wastes

Hazardous wastes and commercial chemical materials classified as ignitable (if generated) are stored in containers that minimize exposure to possible sources of ignition. Chemicals used at the SCYI facility exhibiting this characteristic are acetone, furfural, methyl ethyl ketone, toluene, as well as some chemicals used in the laboratory such as methanol, xylene, cyclohexane, isopropanol, isooctane, pentane, heptane. These chemicals are used in small quantities during the analytical tests and are disposed regularly through the process sewer system meeting the regulatory standards as per 40 CFR 261 (3) (a) (IV). Non-leaded sludge wastes that accumulate in storage tank bottoms may have a flashpoint of 140°F or less and thereby would also be considered an ignitable waste according to 40 CFR 261. Also, spent catalyst is managed as an ignitable waste because it is pyrophoric. This material is placed in lined 55-gallon steel drums and is covered with a CO₂ blanket. The material is properly labeled and segregated within the HWSA.

When ignitable chemicals or wastes are utilized or generated in facility processes, caution is exercised to prevent accidental spills, exposure to open flames, exposure to reactive sources, and any other situations that would create a potential hazard.

Similarly, ignitable wastes are handled with care during the transportation and storage processes. Smoking is not permitted at any location in the hazardous waste facilities ("No Smoking" signs in English and Spanish are displayed throughout the Tank Farm and Refinery Areas). Before permits are issued for maintenance work in these areas, gas tests are required to ensure the absence of explosive conditions. Facility personnel are trained in hazardous material management and are equipped with the proper safety equipment to prevent injury and possible release of hazardous materials.

A summary of the precautions taken by SCYI to prevent accidental ignition of ignitable wastes is provided below.

Facility Unit**Precautionary Measures**

HWSA

- None of the materials stored in the facility is incompatible
- All the wastes are stored in containers. No wastes are mixed in the facility.
- Containers used are compatible with the material. Specific information is available from purchasing records, safety data sheets, and manufacturer representatives.
- Containers are properly labeled and segregated in rows.
- A minimum of 2 feet of aisle space is maintained between groups of containers.

In the event that any incompatible wastes and/or incompatible waste residues and other materials are generated in the future by SCYI, these wastes will be stored in separate storage containers to prevent undesirable chemical and/or physical reactions. Inspections are conducted periodically to ensure that proper waste storage and containment are implemented in accordance with 40 CFR 264. Safety precautions taken by, and training given to, facility personnel dealing with management of hazardous waste and materials are provided in the SCYI Training Program description found in Appendix N.

SCYI has provided documentation of the testing procedures and waste analyses of the ignitable hazardous wastes and materials at their facility. This documentation provides physical and chemical data for each material, along with the USEPA identification number, classification, and sampling and analysis frequency. The SCYI Waste Analysis Plan (see Section 6.0) summarizes the analyses of the different wastes used to provide guidelines for proper handling and storage.

SHELL CHEMICAL YABUCOA INC.

Attachment II-3

***INSPECTION SCHEDULE AND
FREQUENCY & SUMMARY TABLE***

5.2 General Inspection Requirements

SCYI has developed and implemented an inspection schedule which describes procedures for preventing releases of hazardous waste and hazardous constituents which may threaten human health and the environment. The information in this section is provided in accordance with the requirements of 40 CFR 270.14(b)(5) and 40 CFR 264 Subpart I. SCYI inspects all HWSA facilities for malfunction and deterioration, and other conditions that may lead to release of hazardous waste constituents. A brief description of the inspection procedures is provided below. Appendix O provides additional information on the general inspection schedule.

5.2.1 Hazardous Waste Storage Area Facility Inspection

This facility is inspected weekly when not in use and daily when in use. The inspections are conducted by the Health, Safety and Environmental Group (HSEG). A log is used to record all the information obtained during the inspection. The inspection records are maintained in the HSEG files.

The general weekly inspection procedures for containerized hazardous wastes provide for particular attention to be paid to any sign of leaks, spills, and deterioration of containers (drums, roll-off bins and other containers) caused by corrosion and other factors. If any containers show evidence of damage or leakage, the SCYI maintenance department transfers the waste into a container in good condition. All corrective actions are logged onto the inspection schedule checklist for containers.

A more detailed discussion on the inspection procedures used by SCYI to assure good condition and proper management of the containers, dumpsters, and the HWSA is provided in the General Inspection Schedule located in Appendix O.

Hazardous wastes are stored in containers and dumpsters with liners made of materials compatible with the waste to ensure that no undesirable or dangerous reactions between the wastes and containers/dumpsters will occur.

All containerized hazardous wastes stored in the HWSA are sealed to prevent accidental spillage or leakage. Adequate aisle space (a minimum of 2 ft in width) is maintained for all aisles. Handling of the wastes is accomplished using extreme caution with correct safety precautions implemented.

An inspection log for the SCYI HWSA is provided in Appendix O. During the weekly or daily inspection of the HWSA, personnel performing the inspection note the following items:

- Container type (i.e., drum or roll-off), contents and labeling. The contents are verified to ensure that they match the USEPA hazardous waste identification number placed on the container and to ensure that containers have appropriate dates and hazard labels.
- Container condition. Each container is inspected for evidence of leakage or damage.

- Seal condition. All containers are checked to ensure they are sealed.
- Condition of container storage areas. Container storage areas are inspected for cracks or gaps in pad or curbing, and for ponding or evidence of leakage.
- Containment system. The containment system is inspected for gaps, cracks, or evidence of run-off.
- Storage arrangement. All access aisles are inspected to ensure that a minimum 2 foot aisle width is maintained and that container labels can be read from the aisle.
- Security and emergency equipment. Perimeter fence, warning signs, locks, communication equipment, etc. is inspected for proper condition.

The HWSA is designed to contain any waste spillage or leakage in accordance with 40 CFR 264.175(a) and 264.175(b). The concrete floors are inspected for cracks, gaps, or other defects due to aging or wear. No incompatible wastes are stored in the HWSA.

5.2.2 Other Areas - Inspection

Inspections of emergency, safety and security facilities throughout the SCYI facility are conducted by various SCYI personnel. Inspection of such equipment and facilities is intended to ensure response preparedness in the event of an emergency situation anywhere at the facility, such as the process area, bulk storage tanks or loading docks. These inspections are not the responsibility of the Environmental Engineering Group. Rather, it is the responsibility of these other personnel to ensure that equipment is ready in the event of an emergency at the HWSA or at any other location at which hazardous waste may pose a threat of emergency. These responsibilities are summarized below:

- All Refinery Area equipment and facilities are inspected by the SCYI inspection department, in coordination with the Maintenance Department Preventative Maintenance Program.
- All safety and emergency equipment, facilities, and procedures are inspected by the Fire and Safety Group. Inspection records are kept in the Fire and Safety Group's file.

- All security devices and procedures are inspected by the Health, Safety And Environmental Supervisors. Inspection records are kept in the supervisors' file.

Copies of typical inspection logs for emergency, safety and security inspections are presented in Appendix O. If inspections reveal that non-emergency maintenance is needed, it will be completed as soon as possible to preclude further damage and reduce the need for emergency repairs. If a hazard is imminent or has already occurred during the course of an inspection or any time between inspections, remedial action will be taken immediately. SCYI personnel will make the necessary notifications and initiate remedial actions. In the event of an emergency involving the release of hazardous constituents to the environment, efforts will be directed towards containing the hazard, removing it, and subsequently decontaminating the affected area. Refer to the Contingency Plan (Section 7.0) for further details.

5.2.3 Inspection Schedule

Copies of typical inspection logs used for inspecting safety, emergency, and communications equipment have been provided by SCYI in Appendix O, including the following:

- List of Activities for Safety.
- List of Activities for Industrial Hygiene.
- Inspection form for self-contained breathing apparatus.
- Daily fire truck check list.
- Periodic inspection record log for maintenance on portable type fire extinguishers.
- Periodic inspection record log for maintenance on wheeled-type tire extinguishers.
- List of Activities for Fires.

- Telephone, two-way radio, and pager inspection and repair log. A copy of a daily inspection log has been provided.
- Alarm testing log. A copy of a weekly testing log has been provided.

Appendix O

General Inspection Schedule

APPENDIX O
GENERAL INSPECTION SCHEDULE

PURPOSE

Shell Chemical Yabucoa Incorporated (hereinafter SCYI) has developed the following General Inspection Schedule which describes the inspection procedures utilized at the plant site to prevent releases of hazardous wastes which potentially may become a threat to human health and the environment. This General Inspection Schedule complies with the regulatory requirements pertaining to general inspection requirements of the Federal Regulations 40 CFR Part 264 and Part 270. In addition, appropriate sections of the General Inspection Schedule are designed for compliance with specific requirements of Sections 264.174 (pertaining to container storage area).

BASIC CONSIDERATIONS

The General Inspection Schedule at SCYI was developed for all facilities and items involved in hazardous-waste management which are important in preventing, detecting, or responding to environmental or human health hazards. Inspections are conducted according to procedures established to prevent possible releases of hazardous waste or threats to human health due to malfunctions, equipment deterioration or operator errors.

Inspection procedures have been developed for container storage area, hazardous-waste transfer systems, safety, emergency, communications equipment, and security devices. The inspection procedures are designed to identify the specific types of problems which could be expected to occur with these facilities or equipment items. In addition, the frequency of inspection is based on the expected rate of possible deterioration of the equipment and the potential threats to human health or the environment. The inspection schedules established for the facilities and equipment covered in the General Inspection Schedule are shown in Table 1. A list of the materials stored in the HWSB is given in Table 2.

Personnel at SCYI responsible for performing the inspections are normally from the Operations or Maintenance Departments. Information obtained during inspections will be recorded on forms developed for the facility or equipment which is being inspected. These forms will be reviewed by the appropriate Inspector or Senior Technician at the unit. The results of the inspections will be assessed by the appropriate SCYI Operations Personnel or Environmental Engineering Group (EEG) personnel.

TABLE 1

INSPECTION SCHEDULE

<u>Facility/Equipment</u>	<u>Frequency of Inspection</u>
Container Storage Area	Weekly (When not in use) Daily (When in use)
• Container inspected for leaks and deterioration	
Hazardous Wastes Transfer Operations Systems	
• Operating Conditions	As necessary
• Condition of Equipment	Daily
• Piping/Valves	Weekly
Safety, Emergency, and Communications Equipment	Monthly
Security Devices	Weekly
Alarm Systems	Weekly

TABLE 2

HAZARDOUS WASTES STORAGE FACILITY

<u>Facility</u>	<u>Storage Building</u>
Location	WETA
Material Stored	Listed Wastes
Jurisdiction	Operations Department
Inspected By	Operations Department
Frequency of Inspection	Daily

TABLE 3

ASSESSMENT OF INSPECTION RESULTS

<u>Inspection Results</u>	<u>Probable Degree of Hazard</u>		
	<u>Slight</u>	<u>Moderate</u>	<u>High</u>
Container Storage Area			
Leaking Container	X		
Mislabeled Container	X		
Insufficient Aisle Space		X	
Improper Placement	X		
Deteriorated Containment System	X		
Hazardous Waste Transfer Systems			
Leaking Valves or Piping		X	
Safety Emergency & Communications Equipment			
Inoperable Emergency Equipment	X		
Shortage of Emergency Supplies	X		
Failure of Internal Communications	X		
Security Devices			
Damaged Perimeter Fence or Gate	X		
Burned out Light	X		

The response to the inspection results is determined by the degree of hazard to human health or the environment associated with any deterioration or malfunction of equipment noted during the inspection. If the degree of hazard is slight, and no hazards to human health or the environment are imminent, the SCYI Environmental Engineer or Operations personnel will direct the appropriate personnel to repair the affected area or equipment. If necessary, a work order will be issued to the Maintenance Department to perform more extensive repairs. If the degree of hazard is moderate, the Operations Section will immediately request assistance by the appropriate personnel to repair the situation. If the degree of hazard is great, the Contingency Plan will be implemented by the Emergency Operations Manager. A listing of possible inspection results along with the associated degree of hazard is presented on Table 3. Specific details concerning inspection procedures and response to inspection results are presented in sections covering the facilities or equipment inspected.

INSPECTION PROCEDURES

Container Storage Area

SCYI stores hazardous wastes in containers which are housed in the Hazardous Wastes Storage Area (HWSA). This storage area is inspected at least once per calendar week during non-operation and daily during operation to ensure that no hazardous wastes are released during storage activities and that all requirements for container storage areas specified in the Federal Regulations are satisfied.

During the weekly or daily inspection of the HWSA, the Environmental Engineer, Operations personnel or other appropriate personnel performing the inspection will note the following items:

- Number of containers and contents in each storage area: Record the total number of containers in each storage area and verify that the contents match the EPA Identification Number placed on the container.
- Container condition: Visually inspect each container for evidence of corrosion, leakage, or damage.
- Ensure that all containers are sealed.
- Condition of each container storage area: Inspect for cracks or gaps in pad or curbing and evidence of leakage.

TABLE 3

ASSESSMENT OF INSPECTION RESULTS

<u>Inspection Results</u>	<u>Probable Degree of Hazard</u>		
	<u>Slight</u>	<u>Moderate</u>	<u>High</u>
Container Storage Area			
Leaking Container	X		
Mislabeled Container	X		
Insufficient Aisle Space			
Improper Placement		X	
Deteriorated Containment System	X		
Hazardous Waste Transfer Systems			
Leaking Valves or Piping		X	
Safety Emergency & Communications Equipment			
Inoperable Emergency Equipment	X		
Shortage of Emergency Supplies	X		
Failure of Internal Communications	X		
Security Devices			
Damaged Perimeter Fence or Gate	X		
Burned out Light	X		

- Containment System: In each storage area, visually inspect the containment trench and sump for gaps, cracks, or evidence of run-off.
- Labeling: Inspect to ensure that all containers have appropriate EPA Waste Identification Numbers, storage dates, and hazard labels.
- Aisle space and storage: Inspect all access aisles to ensure that a minimum two foot aisle width is maintained, and that container labels may be read from the aisle.
- Ignitable waste: No ignitable wastes may be stored closer than 50 feet to the property line.

A copy of the SCYI container storage area inspection form is shown on Table 4.

Following inspection of the container storage area, the Environmental Engineer or his designate will date and sign the inspection checklist. If any inspection items requiring corrective action are noted; such as open containers, insufficient aisle space, improper labeling, the Environmental Engineer or his designate will notify the Maintenance Department and the containers will be either closed, moved, or relabeled. If any containers show evidence of damage or leakage, the Maintenance Department will transfer the waste into a different container which is in good condition. If any container storage pads are in unacceptable condition, the Maintenance Department will be notified and repairs will be initiated to correct the problem area(s). Containerized wastes will be moved within the area until the affected area is repaired.

After the corrective or remedial actions are taken, the result of these actions will be noted on the back of the inspection schedule check list. All completed checklists are forwarded to the Environmental Engineer for retention in a permanent inspection log file.

Hazardous Wastes Facility Transfer Systems

SCYI uses a vacuum truck to transfer wastes from points of generation to storage area. The facilities being used are chemically resistant to attack of the materials being handled.

Although no pipelines are used for the transfer of hazardous wastes, the refinery inspects and observes pipelines on a routine basis.

TABLE 5

HAZARDOUS WASTES TRANSFER SYSTEMInspection Form

Equipment Inspection Inspected	Items	Condition	Actions/Comments Required (list on back if necessary)
Vacuum Truck	Leakage Connections Breaks or Cracks in Suction or Discharge Lines		
Vacuum Truck Valves	Leakage Seal Integrity Corrosion		

Inspector's Signature_____
Time and Date_____
Reviewed by_____
Time and Date

All transfer systems are monitored continuously during use to ensure that no release of hazardous wastes occurs during transfer operations.

A copy of the inspection form used to document all inspections of hazardous wastes transfer systems in use at SCYI is shown on Table 5. If any problem areas are noted during the inspections, these problem areas will be documented. Minor problems will be repaired during the inspection. All repairs will be inspected prior to placing the waste transfer system back into operation.

All records of repairs performed to any part of the hazardous wastes transfer systems will be documented and filed with the inspection forms. These inspection forms and other related documents will be filed by the EEG at SCYI.

Safety, Emergency, and Communications Equipment

SCYI maintains a variety of safety and emergency equipment onsite for emergency response purposes. Safety equipment includes protective clothing, respirators, shower/eyewash stations, and an ambulance. All safety equipment is inspected monthly by the Safety Department at SCYI to ensure that all equipment is fit for its intended use, and that an adequate inventory of supplies is maintained for emergency situations.

Emergency equipment maintained at SCYI includes fire extinguishers, breathing air equipment (self contained and airline), emergency lighting, fire hydrants, hoses, fittings, a fire-water system, and fire trucks.

Monthly inspections are performed by the Fire and Safety Group on all emergency equipment to ensure that it is fit for its intended use, and that an adequate inventory of supplies is maintained for emergency situations.

During the monthly inspections, fire extinguishers are checked for their expiration date. Self-contained air packs are checked for air pressure and air supply. The ambulance is checked monthly by qualified SCYI personnel. The fire truck is also checked monthly by the mechanic and Safety Supervisor.

Additional safety and emergency equipment listed in the SCYI Contingency Plan will also be checked monthly by the Safety Department. In addition to monthly inspections, weekly inspections are performed by each production area on all fire water valves. A complete listing of SCYI safety and emergency equipment is provided in the Contingency Plan.

Communications systems at SCYI, such as the internal phone system, are used daily during normal operations and are repaired as necessary. The Emergency Phone System is tested monthly to ensure that it is operating properly. The radio is used for outside communication and is checked twice daily.

All inspections conducted on safety, emergency, and communications equipment at SCYI are routed to the Safety Supervisor. The results of the inspections will be assessed, and any noted deficiencies or problem area will be corrected. All repairs to facility emergency equipment will be documented, and filed with the inspection forms by the Safety Supervisor.

Security Devices

SCYI has implemented security measures to control site ingress and egress. All security items are inspected by the Security Supervisors on a regular basis to ensure that they are capable of functioning properly. SCYI security personnel conduct weekly inspections of the perimeter fencing and gate system. Perimeter fencing is inspected for corrosion, holes, underground burrows and evidence of illegal entry. Gates are inspected to see if the locks are functioning properly, if the gates open and close, and if there is evidence of damage, corrosion, or tempering. Facility lighting and warning signs are also inspected weekly. External lighting upkeep is provided by the SCYI Maintenance Department. The Maintenance Operations Department at SCYI will ensure that legible warning signs are present at the hazardous wastes storage facility and that these signs are replaced as needed.

Recordkeeping and Reporting Requirements

Inspection results of all inspections conducted in accordance with SCYI's General Inspection Schedule are documented by the inspector who conducts the inspection. These inspection forms are reviewed by the appropriate unit Senior Technicians or Environmental Engineers for problem areas. Any response or repairs to a problem noted during the inspection, and all work orders for these repairs, are documented. All inspection forms contain the name of the inspector, the date and time of the inspection, and observations made during the inspection, and the date and nature of any repairs or other response actions.

All inspection forms and the results of any repairs or response actions are forwarded to the SCYI Environmental Engineering Group. These records are kept on file for a period of at least three years following the inspection or repair.

INSPECTION LOG FOR HAZARDOUS WASTE STORAGE AREA

Date: _____

Time: _____

Inspector Name: _____

Containers:

- | 1. | Type of Containers: | Drums () | Roll-Off Bins () | Bags/Sacks () |
|----|---|----------------------------------|-------------------|---------------------------|
| 2. | Containers properly labeled: | Yes () | No () | |
| 3. | Containers covered and sealed: | Yes () | No () | |
| 4. | Cover systems free of holes, gaps
or other openings: | Yes () | No () | |
| 5. | Sufficient aisle space: | Yes () | No () | |
| 6. | Improper placement of containers: | Yes () | No () | |
| 7. | Condition of the containers: | Acceptable _____; Replace _____; | | |
| | If replacement is required, explain: _____ | | | |
| 8. | Evidence of Leaking Container: | Yes () | No () | : If Yes, describe: _____ |

Hazardous Waste Storage Structure:

- | | | | | |
|----|--|---------|--------|---------------------------|
| 1. | Cracks in concrete pad or curbing: | Yes () | No () | |
| 2. | Discoloration of concrete pad or curbing: | Yes () | No () | |
| 3. | Cracks in the drains and sumps: | Yes () | No () | |
| 4. | Obstruction to drainage: | Yes () | No () | |
| 5. | Standing liquid on the floor or in the sump: | Yes () | No () | ; If Yes, describe: _____ |
| 6. | Spalling or other deterioration of concrete: | Yes () | No () | |
| 7. | Evidence of leakage from roof: | Yes () | No () | |
| 8. | Deterioration of low permeability sealant: | Yes () | No () | |

Security Devices:

- | | | | | |
|----|---------------------------------------|----------------------------------|--------|-------------------------|
| 1. | Damaged perimeter fence or gate: | Yes () | No () | ; If Yes, explain _____ |
| 2. | Condition of locks on gates: | Acceptable _____; Replace _____; | | |
| 3. | Warning signs in good condition: | Yes () | No () | |
| 4. | "No Smoking" signs in good condition: | Yes () | No () | |
| 5. | Appropriate and sufficient lighting: | Yes () | No () | If No, explain _____ |

Comments: _____

Safety Inspection Logs

SELF-CONTAINED BREATHING APPARATUS INSPECTION SHEET

Device _____ SN _____

Date Inspected _____ Inspected By _____

Location _____ User Group _____

Person Responsible, for Monthly Inspection _____

CHECK LIST

	OK	NOT OK
Inspect all rubber parts, harness and check valves; for punctures, deterioration and signs of wear.		
Inspect all metal parts for burrs, cracks, nicks, bents and corrosion.		
Inspect hoses for punctures, nicks & excessive abrasion.		
Inspect for missing or damaged hardware, such as nuts, screws and washers.		
Inspect knobs for cracks and firm attachment to valve stems.		
Inspect valves for bent stems.		
Inspect alarm bell operation and regulator.		
Inspect gauges for broken or cracked glass lenses.		
Inspect cylinders pressure gauge for full indication.		
Inspect harness straps, for worn or frayed webbing, rivets pulling out, snaps & buckles and condition of straps on head hardness.		
Inspect mask assembly for broken or excessively scratched lens, ripped or missing mask buckles and condition of straps on head hardness.		
NOTE: All discrepancies will be noted on back of the check list (Inform Supervisor).		

Return this form to the Safety Department at the end of each week.

SAFETY DEPARTMENT

Emergency Inspection Logs

INSPECTION LOG FOR HAZARDOUS WASTE EMERGENCY EQUIPMENT AND SYSTEMS

Date: _____

Time: _____

Inspector Name: _____

Protective Clothing:

1. Type of Clothing: Tyvek () Polyethylene () Other () _____
2. Sufficient quantity of suits, gloves, and face masks available: Yes () No ()
3. Properly stored and identified: Yes () No ()
4. Free of punctures, deterioration and signs of wear: Yes () No ()

If replacement is required, explain: _____

Safety Shower/Eyewash Station:

1. All units operable: Yes () No ()
2. Pipes and fittings are free of corrosion: Yes () No ()
3. Water pressure is adequate for shower and eyewash: Yes () No ()
4. Shower curtain is free of rips and/or holes: Yes () No ()
5. Sufficient quantity of disposable towels: Yes () No ()

If replacement or repairs are necessary, explain: _____

Emergency lighting/Phone system:

1. Sufficient battery powered emergency service lanterns: Yes () No ()
2. Adequate supply of batteries: Yes () No ()
3. Electric lights are in working order (no broken bulbs): Yes () No ()
4. Telephone is working and in good condition: Yes () No ()

If replacement or repairs are necessary, explain: _____

Spill Response Equipment:

1. Sufficient absorbent pads/pillows and loose sorbents: Yes () No ()
2. Sufficient booms of adequate length: Yes () No ()
3. Properly stored and identified: Yes () No ()
4. Free of deterioration/degradation: Yes () No ()

If replacement is required, explain: _____

Comments: _____

INSPECTION LOG FOR RESPIRATORS

Date: _____

Time: _____

Inspector Name: _____

Respirators:

- | | | | |
|----|--|-----------------|-------------------|
| 1. | Type of Respirator: | Full-Face () | Half-Mask () |
| 2. | Type of Cartridge: | Particulate () | Air Purifying () |
| | | | PAPR () |
| 3. | Cartridges/filters are clean and within their useful life: | Yes () | No () |
| 4. | Sufficient quantity of cartridges/filters: | Yes () | No () |

If additional cartridges are needed, list type and amount: _____

- | | | | |
|----|--|---------|--------|
| 5. | Mask lenses are without scratches or cracks: | Yes () | No () |
| 6. | Head harness straps are not ripped or missing: | Yes () | No () |
| 7. | Snaps and buckles are in good working condition: | Yes () | No () |

If replacement or repairs are necessary, explain: _____

Comments: _____

DAILY FIRE TRUCK "CHECK LIST"

Month: _____ 19__

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Inspect oil level in crankcase of engine. Add oil when needed.																															
Check coolant level in radiator and add coolant if needed.																															
CHECK AIR PRESSURE GAGES																															
Check fuel level gauge.																															
DRAIN AIR PRESSURE TANK																															
Start engine and check for unusual noise, excessive vibration.																															
CHECK OUTRIGGERS																															
Start pump engine, check all gauges for proper operation.																															
Check pump primer lubrication system.																															
Check for leaks and loose parts.																															
Check foam tank.																															
CHECK HYDRAULIC TANK																															
CHECK BOOM CONTROL PANEL																															
Check battery and add necessary water; clean terminal																															
CHECK PTO FOR BOOM OPERATION																															
Check all tools and equipment for damage, rust, dirt, etc.,																															
CHECK BOOM EMERGENCY MOTORS																															
Make visual check of the truck tires, check tire pressure.																															
CHECK NOZZLE OPERATING SWITCHES																															
Inspect nozzle for clogged orifices																															
CHECK BOOM CONTROL VALVE																															
Check nozzle close and open ratchet for smooth operation.																															
CHECK FILTER INDICATOR LIGHT																															
CHECK OUTRIGGER VALVE																															
Check all valves for the closed position.																															
CHECK MICROSWITCHES																															
Operate the foam pump once a month and run water thru																															
OPERATE BOOM ONCE A MONTH																															

V = O. K.

X = Discrepancy - Action taken, see Remarks on Reverse Side

DAILY FIRE TRUCK "CHECK LIST"

Month: _____

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1. Inspect oil level in crankcase of engine. Add oil when needed.																															
2. Check coolant level in radiator and add coolant if needed. Do not remove radiator cap when engine is running - coolant system is under pressure.																															
3. Check fuel level gauge. If gauge reads below 3/4 full, truck is to be refueled.																															
4. Start engine and check for unusual noise, excessive vibration, etc. observe instruments and gauges for proper operation.																															
5. Start pump engine, check all gauges for proper operation.																															
6. Check pump primer lubrication system.																															
7. Check for leaks and loose parts.																															
8. Check foam tank.																															
9. Check dry chemical tank.																															
10. Check handlines, and hose reel rewind switch.																															
11. Check battery and add necessary water; clean terminal connections if corroded or dirty and inspect for tightness.																															
12. Check all tools and equipment for damage, rust, dirt, etc., and clean if necessary.																															
13. Make visual check of the truck tires, check tire pressure, inspect for leaks and loose parts.																															
14. Inspect nozzle for clogged orifices and remove any foreign material from inside valve nozzle and nozzle orifices.																															
15. Check nozzle close and open ratchet for smooth operation.																															
16. Check nitrogen bottles for proper storage and periodically check pressure.																															
17. Check all valves for the closed position, and work them for smooth operation.																															
18. Operate the foam pump once a month and run water thru the system.																															

V = O. K.

X = Discrepancy - Action taken, see Remarks on Reverse Side

VS000

FILE _____ SERIAL NO _____ DATE PURCHASED _____
 CPS NO _____ LOCATION BLDG NO _____ FLOOR _____
 FILE _____

DATES												
..	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC

REMARKS:

PERIODIC INSPECTION RECORD FOR MAINTENANCE OF WHEELED EXTINGUISHER

MODEL _____ SERIAL NO. _____ DATE PURCHASED _____

WIVERS NO. _____ LOCATION, BLDG. NO. _____ FLOOR _____

11H(R)

USE (✓) FOR PERIODIC INSPECTION .. USE (X) FOR ANNUAL RECHARGE OR DETAILED INSPECTION

DATES

REMARKS

YEAR	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
------	-----	-----	-----	-----	-----	------	------	-----	------	-----	-----	-----

[illegible]

Communication Inspection Logs

Domingo 14 de Sept 1986 12:00

En la hora y fecha ante indicada
se realizó la prueba de los
alarmas. Todas funcionaron.

C. D.

September 14, 1986 (Sunday)

at 12:00

On this hour of this date a test for the fire and gas alarms
was conducted. All alarms functioned properly.

Authorized Personnel Signature

DATE RECEIVED	SENRAL NO	PAPER	DATE MAILED	DATE RETURNED	TURNED IN BY	RECEIVED BY	AREA	REMARKS
3/11/86	8347	C7	APR 9-86	5/1/86	Vital Cury	Vital Cury	Cruiser	Not received
4/1/86	8287	U-3	"	5/1/86	Vital Cury	"	Utilities	"
4/1/86	-	Multi Changer	-	4/1/86	Vital Cury	Cruiser, Utilities		Repaired by me and repaired by me and
4/15/86	2332	SS3	-	4/18/86	Vital Cury	Power	EPS	Repaired by me and
4/17/86	8341	C-10	4/24/86	July 4, 86	Vital Cury			Repaired by me and
4/17/86	8279	M10	=	4/22/86	Vital Cury	Johns Vagary	Naval	Repaired and returned
4/18/86	8536	O-6	=	4/22/86	"	Vital Cury	Sk. Team	Repaired by me and
4/18/86	8621	G-3	4/24/86	4/22/86	P. Lemay	Vital Cury		Taken by Ed Broad
"	8286	C-3	"	4/22/86	Vital Cury	"		"
"	8492	O-5	"	4/22/86	"	"		"
"	8483	O-4	"	4/22/86	"	"		"
"	8600	K-5	"	4/22/86	"	"		"
"	8515	Power 100	"	5/1/86	Carille Hydroelectricity	P. Lemay	On Hand	broken battery box
"	8545	O-9	"	5/1/86	Vital Cury	Vital Cury		
"	Hydroelectricity	-	"	5/1/86	Vital Cury	"		
"	3366	SWIFT SUPPLY RADIO	"	5/1/86	"	"		
"	3389	TC 37	"	5/1/86	"	"		
"	FEA HANDSETS	37	"	4/20/86	Vital Cury	Vital Cury		
May 11, 86	8762	M-7	-	5/1/86	Vital Cury	Vital Cury		broken case
"	2551	170	-	5/1/86	Marine Dept.	REPAIRS	May 14, 86	Returned on May 12
EQUIPMENT	TAKEN BY BRADY TO	TO			REPAIRS			
MAY 14, 86	8347	C7	MAY 14, 86	June 2, 86	Vital Cury	Vital Cury		
"	8762	M-2	"	June 11, 86	Johns Vagary	Johns Vagary		